

AMATEUR RADIO



Published in the interests of Amateur Radio
by the W.I.A. (Vic. Div.), Official Organ
of all divisions of the W.I.A., A.R.A.
(N.S.W.) and the R.A.A.F. Wireless Reserve.



PRICE

6^d

JUNE, 1934

ARE YOU A MEMBER ?

Subscriptions to the W.I.A. (Victorian Division) are as under;—

Full Member, 20/-. Associate Member, 16/-.

Country—Full Member, 14/6. Associate Member, 10/6.

Student Member, 7/6. Entrance Fee, 2/6.

Write to Secretary, KELVIN HALL, Collins Place, City.

AMERICAN RADIO MAGAZINES - - Reduced Prices !!

	Per Copy.	Postage.	Yearly.
Q.S.T.	2/-	2d.	19/6
RADIO (U.S.A.)	2/-	2d.	23/-
RADIO WORLD	1/3	1d.	45/-
PROCEEDINGS INSTITUTE OF RADIO ENGINEERS	7/6	3d.	75/-
ELECTRONICS	3/-	3d.	33/-
SERVICE	2/-	2d.	23/-
RADIO CRAFT	2/-	3d.	22/-
SHORT WAVE CRAFT	2/-	3d.	22/-
RADIO NEWS	1/9	3d.	22/-
INTERNATIONAL PROJECTIONIST RADIO ENGINEERING	2/-	2d.	22/-
RADIO RETAILING	2/6	3d.	33/-
AMERICAN CINEMATOGRAPHER INTERNATIONAL PHOTOGRAPHER	2/6	2d.	29/-

ENGLISH

WIRELESS ENGINEER AND EX- PERIMENTAL WIRELESS	3/6	3d.	42/-
WIRELESS WORLD (Weekly)	6d.	2d.	32/-
GRAMOPHONE	1/9	3d.	22/-
WORLD RADIO (Weekly)			26/-

SPECIAL !!

Q.S.T. for one year, and Membership to American Radio Relay League for 18/-.
RUSH THIS!!

1934 TEXT BOOKS

RADIO AMATEUR HANDBOOK, 11th Edition, revised and rewritten, 7/6 copy, 5d. post.
ADMIRALTY HANDBOOK WIRELESS TELEGRAPHY, 12/6 copy, 1/3 post.
POSTMASTER-GENERAL'S HANDBOOK OF INSTRUCTIONS FOR WIRELESS TELE-
GRAPHISTS, revised edition just released—all the new Q signals, etc.—every "ham"
and "fan" should possess a copy; now reduced to 1/6, post free.
RADIO ENGINEERING, Terman, 39/6 copy, 1/3 post.
RADIO ENGINEERING, Henney, 39/6 copy, 10d. post.
RADIO COMMUNICATION, Everitt, 39/6 copy, 1/3 post.
THERMIONIC VACUUM TUBE, Chaffey, 49/6 copy, 1/3 post.
RADIO MANUAL, Sterling, 55/ copy, 1/ post.
RADIO PHYSICS COURSE, Ghirardi, 35/ copy, 1/3 post.
CITIZENS AMATEUR CALL BOOK—AMATEUR, SHORT WAVE, and COMMERCIAL
STATIONS OF THE WORLD, 9/6 copy, 6d. post.
Send stamped, addressed envelope for full catalogue of works on Radio, Sound Projection,
Flying, Refrigeration, Television.

McGILL'S AGENCY

183-185 ELIZABETH STREET,
(The G.P.O. is Opposite)

MELBOURNE.
Central 8113

QUARTZ CRYSTALS

Every Crystal tested to 50 watts input to Penthode Crystal Oscillator.
Accurate grinding to .03 per cent. 3.5 M.C., 20/; 7 M.C., 30/.

100 K.C. Xtals. 465 K.C. Xtal "Gates." Prices on application.

MAXWELL HOWDEN (VK3BQ) CONS. RADIO ENGR.
13 Balwyn Road, Canterbury, E.7.

Pay Cash and Pay Less

You can save good, hard cash when you deal with
VEALLS. Make it a habit—ALWAYS TRY VEALLS
FIRST for

All Your Radio and Electrical

Requirements. Visit any one of our Four Big Stores
—each packed with thousands of items of interest.
If you cannot call—write for big Free 74-Page
Catalogue. It contains over 500 illustrations, and is
essential to every Radio enthusiast.

VEALLS

Arthur
J.
Veall
Pty. Ltd.

4 Big Cash Stores

168-172 Swanston Street,
Melbourne.

243-249 Swanston Street,
Melbourne.

299-301 CHAPEL STREET, PRAHRAN.

3-5 RIVERSDALE ROAD, CAMBERWELL.

Cent. 2058 (5 lines); 10524 (2 lines);

Wind. 1605; W 5160.

The "505"



The latest addition to their 2½ in. Instruments

0.50 Millivolts D.C.

0.5 Volts A.C.

0.1 Milliamps D.C.

0.1 Milliamps A.C.

1000 Ohms per Volt

All in the one Instrument, with Selector Switch.

Stocks arriving.

Ring for Reservations.

NOYES BROS.

(MELBOURNE) PROPY. LTD.

597-603 Lonsdale Street

Phone, Central 10105.

"AMATEUR RADIO"

Published by the Wireless Institute of Aust., Victorian Division.

Vol. 2.—No. 6.

1st June, 1934.

INDEX

	Page		Page
Editorial	5	News from Federal Headquarters	17
Our Centenary Receiver	6	A.R.A. of N.S.W. Notes	18
Station Description	10	VK4 Notes	20
Managing a QSL Bureau	10	VK5 Notes	20
Victorian QSL Bureau	13	VK6 Notes	21
Stabilised B Eliminator Bias	13	VK7 Notes	22
VK3—Key Section Notes	14	R.A.A.F. Wireless Reserve Notes	22
Phone Section Notes	14	"QRZ" is Still Writing	24
Country Notes	16	Portables	26
		Melbourne Centenary DX Contest	27

WIRELESS INSTITUTE OF AUSTRALIA.

OFFICE-BEARERS:

Federal Headquarters: Adelaide.

President:

R. B. CALDWELL (VK5BP).

Secretary:

E. A. BARBIER (VK5MD).

Treasurer:

R. D. ELLIOTT (VK5RD).

Traffic Manager:

H. N. BOWMAN (VK5FM).

Publicity Officer:

G. R. RAGLESS (VK5GR).

Victorian Division.

Patron:

CAPT. A. E. PAYNE (VK3PP).

President:

GEO. THOMPSON (VK3TH).

Secretary:

J. WINTON (VK3XR).

Treasurer:

S. BENNETT.

Traffic Manager:

R. H. CUNNINGHAM (VK3ML).

Magazine Committee:

Editor: H. KINNEAR (VK3KN).

V. MARSHALL (VK3UK), J. MARSLAND (VK3NY),

L. MONCUR (VK3LN), W. R. GRONOW (VK3WG),

R. H. CUNNINGHAM (VK3ML)

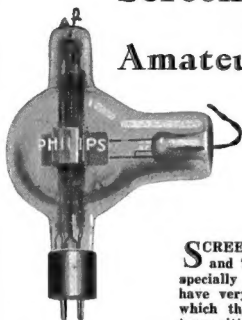
All Communications and MSS. should be forwarded to the Editor, "Amateur Radio," Box 2, P.O., South Melbourne.

Subscription to "Amateur Radio" is 6/- per Annum (Post Free), paid in advance.

Should you not receive your copy of "Amateur Radio," notify your Divisional Secretary at once.

Screen Grid Valves

For Amateur Transmitters



Types:

QB 2/75, QC 05/15

 $\frac{1}{2}$ of actual size.

SCREEN GRID Transmitting Valves for 15 and 75 watts have been designed by Philips specially for use by amateurs. These valves have very important properties, as a result of which the construction and adjustment of the transmitter can be greatly simplified. The control-grid and anode of these valves are screened from each other by a screen-grid, thus reducing

anode-control grid capacity to a minimum. When used as H.F. amplifier or frequency multiplier in controlled transmitters there is practically no reaction of the anode circuit on the grid circuit, and self-oscillation is impossible with screening outside the valve. Neutralisation is unnecessary, so it is very easy to alter the wave-length at short notice. These screen-grid valves give greater amplification than triodes under the same conditions.

Table A shows the various electrical properties of the Philips amateur transmitting valves:—

CHARACTERISTICS:

Table A. Type.	Screen Grid Valves.	
	QC 05/15.	QB 2/75
Filament voltage	4.0	10.0
Filament current*	1	3.25
Saturation current*	400	2,000
Anode voltage	400-500	2,000
Screen grid voltage	75-125	300-500
Max. anode dissipation	15	75
Anode dissipation on test	20	100
Max. screen grid dissipation	3	15
Amplification factor*	225	200
Mutual conductance (slope)*	1.4	1.4
Int. resistance*	160,000	150,000
Anode-grid capacity001	.02
Max. diam of bulb	50	100
Max. length	160	210

*Approximate values.

PHILIPS

TRANSMITTING VALVES

EDITORIAL

JUNE! As the sixth month rolls up on the calendar one of the responsibilities of every serious-minded member of the W.I.A. should come to his mind. For, before 30 days are past, his will be the duty to choose his council for the ensuing twelve months, to vote for twelve men whom he considers worthy and capable of guiding his institute to the greatest advantage. It is a responsibility that is very real, and every member's ballot form should only be filled in after a mature consideration of the merit of each candidate submitting himself for election. There is nothing worse than an inactive or apathetic councillor. Not only is he not pulling his weight as he should, but also he is occupying the chair which might have been filled by a man of perception and enthusiasm. An inactive councillor is principally a reflection on the poor judgment of those who have elected him.

In the W.I.A. our form of government is essentially democratic. The thing that is at the same time the strength and yet the weakness of a democracy is that the voting power is solely in the hands of the individual, and the fact which can make a democracy approach most nearly the Utopian form of government is to have an intelligent voting membership. On the other hand, a democracy presents a rather sorry spectacle if its members either vote carelessly or fail to vote at all.

Every ham gives a good deal of serious consideration to the matter of rebuilding his station, summing up the pros and cons of all systems, etc., and finally deciding how he can use his gear to the best advantage, so as to obtain maximum results. If he finds, after testing and after a number of QSO's, that he has not achieved the best possible results, he will incorporate the necessary changes in his

next rebuild. We trust our readers will excuse us resorting to a simile, but it appears a rather apt one. The time of rebuilding his station is election time, and his finished station is the council he elects. If he feels the maximum results are not being achieved it is his duty to find out why, and then vote in accordance with his changed views at the next election. Remember, change is not necessarily progress, but there can be no progress without change.

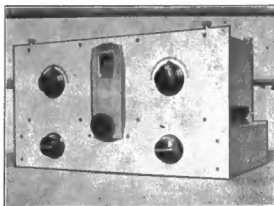
The change that is essential in us all to-day is to take a lively, intelligent, red-blooded interest in all the doings of our institute and its leaders. We take a tremendous interest in that station of ours; then isn't it sane and reasonable that we should do the same for the organisation which is the hub around which our wheel of radio activity revolves?

When your councillors are elected your job is still as important as it was when you voted for them, if you want progress in your institute. Follow their policy; if you don't like it see your councillors. If they don't respond to your ideas, change them at the next election. If you can't change them it's because you are in the minority, and most other members don't share your views. In that case you are not entitled to prevail. You can be assured that if your ideas are sound, the majority will agree with you, and there will be the desired change.

This month there is a job which is 100 per cent. up to you as a member of the W.I.A. Your councillors or the ham in the next block cannot lift a finger to help you. When you get your ballot paper **VOTE**, and **VOTE INTELLIGENTLY**, so that you can have the satisfaction of feeling you have done your part towards furthering and bettering your institute.

Our Centenary Receiver

By VK3WL and VK3OC.



A receiver to take us comfortably through those torrid week-ends of October, 1934, must of necessity be one possessing a high order of sensitivity and selectivity. The various bands of the amateur spectrum should be literally throbbing with etherical vibration; conditions will be as never before. Therefore, it behoves us all to look warily to our earpieces.

Receivers taken by the large may be grouped under four general headlines—autodynes with and without pre-R.F. amplification, super-heterodynes with and without piezo-electric quartz filters. The autodyne without pre-R.F. amplification, detector and one (or two) can be quickly ruled out. Our receiver must possess real sensitivity, and, although this can be obtained with a single tube, every other desirable quality in a receiver must be sacrificed in the process. Remember, we are discussing conditions which will obtain in October, 1934.

We are now left with three possible types, and the fact that the question of cost against performance must loom largely. Unquestionably the best receiver you could build would be a correctly designed and efficiently adjusted super, with a pre-selector or R.F. stage and quartz filter. But (and, please, be honest, mister) could you do all those things, and, granting that you could, would you ever in Australia really need the selectivity available? If you did need it, could you

afford such a receiver, and would it be worth the cost? Very few of us could survive this process of elimination, and even so, with the receiver on the job, we find we have a merciless machine producing in the output nothing but the signal or signals audible on a definite frequency, and that only, with unswerving constancy.

My friend ZL4AI, winner of the B.E.R.U. challenge trophy in 1933, and ZL's premier contest ham, whose chosen profession is electrical engineering, is the possessor of such a receiver. He has made the alarming discovery that there are practically no signals worthy of such an instrument, and that the steadiest of steady signals actually do creep too much. If this ultimate instrument is so adjusted as to give its maximum selectivity response, one needs the ears of a cat and the delicacy of hand necessary to an operative surgeon, otherwise the signal has disappeared. If you are the fortunate possessor of such rare qualities will you need such a receiver?

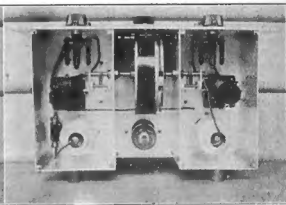
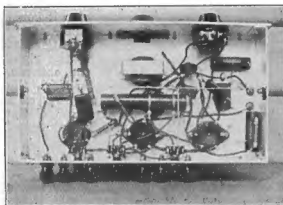
So much for the pitfalls surrounding perfection. It has been my privilege to handle a few of the type of SS super which employs but five tubes, with a regenerative IF stage to obtain SS characteristics. With the exception of the fact that it is possible to listen over most of the band on which your transmitter is tuned, whilst actually keying, I feel positive that this

type of receiver is no better than a well designed and constructed autodyne employing a tuned RF stage. A laboratory selectivity test would perhaps prove my statement to be incorrect, but I am sure no aural test would do so. The TRF set has definitely much greater gain, and, although this may appear to be heresy at first glance, it must be remembered that the SS set has but three tubes working, the other two (the oscillators) being but necessary appendages.

Balancing difficulty of construction, adjustment, cost and what can be gotten from such a super, against the similar items of the TRF set we intend to describe, we honestly believe the TRF set wins rather easily. I used such a receiver in the recent ARRL test, under local conditions,

higher frequencies. This shows that with care in construction the results may be duplicated.

I have handled quite a few receivers of this type, some I have built myself, and others I have not. They all followed the ratio previously mentioned—results equal care. The receiver as illustrated and described is a delight to handle, and no one should ever desire a more efficient instrument. It was built around six volt type tubes, making AC/DC operation optional by means of suitable switches, and consequently is ideal for country hams. The three tubes employed draw approximately one amp. at six volts, and if AC mains are available no better "B" supply could be obtained than a Philips eliminator. These are obtainable at ridiculous prices, and one would fit in nicely with the transmitter for bias to me-



which would be difficult to make worse. We desired to test the receiver under these conditions, and this desire was really fulfilled (VK3MR can vouch for this). Ninety per cent. of the QSO's in that test were with stations between 7000 and 7080 KC, an area literally teeming with Yanks and others. Our ultimate super would have performed better than the TRF set perhaps, but I am certain that nothing else would. This set definitely has got selectivity and sensitivity to spare. If you do decide to build the receiver as described, you may expect your results to be in direct ratio to the care you take in construction and adjustment. The receiver I used in the ARRL test was not built by an experienced ham, but by a senior P.M.G. mechanic friend of mine, who had then had no experience on the

dium power stages. If it is to be used in a district where no AC is available 100 volts of "B" batteries have been found to give the highest grade of performance possible with the set. The RF and detector stages are ganged, and if the values specified are approximately adhered to, no trouble will be experienced in out of line tuning. High C is used in both tuned circuits, and an electron coupled detector. It would be superfluous to enumerate all the features that go to make this receiver the splendid performer that it is; suffice it to say that if you do depart from the values and details given—please do so intelligently, otherwise we take no responsibility for your final result. Everything in the arrangement has had to earn its place, and nothing is superfluous.

The preamble by VK3WL now brings us to the constructional details of the receiver, and by way of a start we would both like it on record that we claim no originality for the design. It first appeared in "QST," January, 1933, under the title of "Rationalising the Autodyne," by George Grammer, and as most hams will have access to this issue we would refer them to it for fuller technical details, space not permitting a complete re-hash here.

Reference to the illustrations will show that the only real change has been made constructionally—that is, the tuning dial has been placed in the centre, and the cans containing the detector and RF stage on either side instead of next door, as in the original. This arrangement may or may not be an improvement, as, although there is less tendency to interlocking on account of the physical separation of the stages, it necessitates the use of a long plate lead to the RF stage. However, if this is run from can to can, and above the base, no trouble will be experienced. This lead is shown plainly on one of the photos.

Some slight latitude is permissible in the sizes of the receiver generally, but particular attention must be given to proper shielding and rigid construction. On the set illustrated the panel is $\frac{1}{2}$ inch aluminium, measuring $7\frac{1}{2}$ by 14 inches, the base 3-32 aluminium $7\frac{1}{2}$ by $13\frac{1}{2}$ by $2\frac{1}{2}$ inches deep, and the cans 1-16 aluminium $7\frac{1}{2}$ by $4\frac{1}{2}$ by $4\frac{1}{2}$ inches high. Quarter inch square brass rods are used in the construction of the cans, and are bolted to the panel and the base by $\frac{1}{2}$ inch machine screws, having previously been tapped. Some little trouble may be found in making a nice fitting job, but remember the old adage about patience and perseverance.

It may be necessary to use some form of flexible coupling between the dial and tuning condensers, but as these couplings are not easily obtained now, a direct drive (as illustrated) works very well if the condensers are properly lined up, and the shafts extended.

A complete list of components is given with the circuit diagram. Fig. 1, and all values should be closely duplicated. The impedance L5 may be either an audio transformer, with the

primary and secondary windings in series, or a special choke, which may be obtained very cheaply from one of our advertisers, and which works very well.

The National drum dial and the Hammerlund 5-plate midget condensers used are, unfortunately, not available in Australia, but any other good drum dial and midget condensers will be found equally satisfactory, and will not affect the layout to any extent. If greater band spread is desired use 3-plate midgets. The padding or band spreading condensers are 23 plate, and no trouble should be experienced in setting these for various bands. As the RF padder is tuned through resonance an increase in signal strength is at once noticed, together with a slight change in the beat note. The setting holds good over the complete dial range.

A Hartley circuit is used in the detector, although with six prong sockets the ordinary tickler circuit could be used. We have found the Hartley entirely satisfactory, providing that care is taken in obtaining the right position for the tap to the cathode. Although not extremely critical, the right place is a matter of parts of a turn, so as to be able to control the detector with reasonable values of screen voltage.

In order to be able to bring the padders back to the same position after changing bands, some indicator is desirable. I have found that if the panel has been "cured" by immersion in a fairly strong caustic soda solution it will take India ink very well, hence the pretty semi-circles shown in the photo. You could also add a heart with an arrow through it, and the YL's initials if you feel artistic.

In wiring up it is essential that all RF grounds be brought to earth at a common point. The idea used here was to run one wire the whole length of the base, and bring all earth connections to this. Reference to the photo taken from underneath will show this lead plainly.

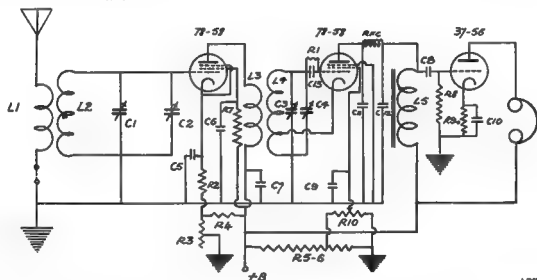
As 3WL has already mentioned, 6-volt tubes were used in this version. All that is then necessary for battery operation is to incorporate three double pole toggle switches (in this case on the back), one to break both filament leads, one to cut out the voltage divider, and one to break the "B"

leads. The tap on the voltage divider to potentiometer R10 is brought out to a terminal, and connected to positive 50 volts "B" when batteries are used. These are not shown in Fig. 1. Other arrangements will, of course, suggest themselves to the constructor.

In conclusion, both 3WL and myself will be glad to hear from anyone building up this job, and pleased to

furnish any further information required. Although the receiver as it stands is not a panacea for all ills, it is, when properly constructed, a definite improvement on the average ham receiver. The lift is there—more than normally required—and the selectivity, especially with the RF gain control cut back, is excellent. What more can we expect from three tubes?

FIG. 1.



Values, Fig. 1.

- C1, 3-5 or 3 plate midjet condensers.
- C2, 4-23 plate midjet condensers.
- C5, 6, 7, 8—.01 mfd. mica condensers.
- C9, 10—.5 mfd. non-inductive condensers.
- C11, 12-100 mfd. mica condensers.
- C13-250 mfd. mica condensers.
- R1-5 megohm resistor.
- R2-250 ohms, 2 watt.
- R3-10,000 ohm wire-wound pot.
- R4-50,000 ohm, 2 watt.
- R5, 6-20,000 ohm voltage divider.
- R7-100,000 ohm, 1 watt.
- R8-1 megohm.

- R9-2000 ohms, 1 watt.
- R10-50,000 ohm potentiometer.

Approximate Coil Data, Fig. 1.

Coils wound on Marquis formers, L1, L3, on same form, L3, L4, on same form. Primaries 30 dec in all cases. 3500 kc grid coils 20 dec, close wound. 7000 and 14,000 kc grid coils wound with 18 enamelled wire, and spaced. Spacing between coils about $\frac{1}{2}$ inch. Taps on detector coil from ground end.

Band.	L1	L2	L3	L4	Tap.
3,500	8	32	24	32	1st
7,000	6	13	11	13	$\frac{1}{2}$
14,000	4	6	5	6	$\frac{1}{4}$

HARMONICS.

The gra of F8BVX, as given on page 26 of the March issue of "A.R." is incorrect. The correct gra of this consistently received station is: —Prince Vinh-san, 67 Rue Sainte Anne, Saint Denis, Reunion Island.

F8BIA is L. T. Rene Bertrand, Tanarive, Madagascar.

BERS-195 (Eric Trebilcock, Moonta, S.A.) wants to know QRA's of F9AAC as VP2ERM, both logged on 7 mc. in VK5.

Heard on 3500 KC on May 15 a self-excited

station, using a 500 cycle generator on phone. Could not quite catch the call—3 something H.

W6BVZ will be calling for VK stations on 3675KC on June 15, 16, 17, 22, 23, 24, 29, 30, July 1, at 3.30 to 4.30 p.m., and 5 p.m. to 6 p.m. Keep a look-out for him.

Geo. Thompson (3TH) informs us with much regret that his proposed visit to Kerang during the King's Birthday week-end will not eventuate owing to extreme pressure of business at that time. Sorry, m' lads, but will "come up and see you some time."

STATION DESCRIPTION.

VK7CH.

As the op at VK7CH has been transferred to the mainland, and as station VK7CH is now only a memory, a short history of the station may be of interest to some of those many hams who have QSO'd "Snowy" at

being investigated, various three-stage xtal rigs have been in use, the last line-up being 47 oscillator, 46 doubler and one or two E406's in the final stage.

The ten metre band was not neglected, the best two-way work being first Tas.-Aust. QSO on that band, when 500 volts on two 245's in a PP circuit produced the signals.

For receiving various types of two-valvers were used, the last being AC, using 56 det. and 56 audio. More than this was never used, and was found quite sufficient to bring in plenty of DX.

For this location a full wave zepp, running N.W. by S.E. proved the most efficient, and has been in constant use for the last three or four years.

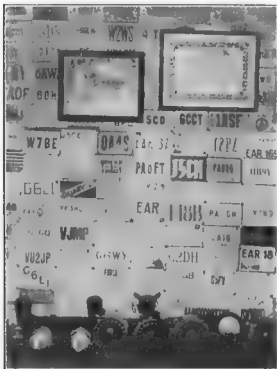
Sixty-two countries have been worked.

MANAGING A QSL BUREAU.

By VK3RJ.

Many years of management of a busy QSL Bureau has not proved barren of experiences, grave and gay, pleasant and exasperating, humorous and not quite so. The seeming monotony of dealing with thousands of cards annually has constantly been punctuated by interludes, and high-spots falling within the categories aforementioned.

However, it is my intention to endeavour to convey to you in this short article just what the management of a QSL Bureau means, what work is entailed, and what care is bestowed on yours cards, the system adopted, the endless attention to detail, and, lastly, but most important of all, a few hints whereby patrons of bureaux (aren't we all?) may lighten the burden and expedite the handling of their wall-paper. Efficient management of a bureau of any size and importance means that the manager must give many of his otherwise leisure hours to the duties. Procrastination and lack of systematic handling have wrecked many a bureau, and the efficiency falls in direct ratio to the lack of energy displayed. Admittedly it is heartbreaking to arrive home and find a stack of cards and correspondence awaiting attention just when DX is coming in well or when some article in a journal excites one's experimental leanings and the hands



various times during the last seven years.

VK7CH or OA7CH was licensed on July 12, 1927, and the first QSO was with a local station the same day. The transmitter was then the old reliable Hartley, with some 200 volts from slop jars to a UX201A. Later in the same year this was increased to 400 volts, and a UX210 installed, and all Continents were worked. The next transmitter was a TPTG, which was completed early in 1928. This transmitter gave splendid results on the 40, 30 and 20 metre bands, and remained in use until December, 1930, when a two-stage c.c. was built. However, this did not prove very satisfactory, and pending the installation of a larger one, the TPTG was once again brought into service, and, being such a consistent performer, it remained for the next twelve months. From that time until the present, except for a few months while PP was

itch for the bug, the soldering iron or pliers.

Briefly, the system of handling that has placed the VK3 Bureau on an efficient basis, in the forefront of world bureaux, and earned it world-wide approbation, is as follows:—

The morning mail arrives. Maybe the postman awaits without to collect the surcharge on an insufficiently prepaid letter or packet. A hasty glance at the offending article as to postmark and handwriting suffices as to whether the tax will be paid or the article refused. If these details indicate that the sender is an old offender either through parsimony or carelessness, then the article is refused, and it will then be returned by the Postal Department to the sender, who, under pain of a statutory penalty not exceeding £2, must pay the deficient postage. This bureau never refuses to accept the first insufficiently prepaid article sent it by any particular ham, and the sender is acquainted of his remissness. Should the advice tendered not be heeded, then the corrective treatment occasioned by the refusal to accept subsequent articles has been found to be the best medicine.

After disposing of the postman the mail is roughly sorted. Articles obviously containing cards are laid aside for later attention. Letters claiming cards, or with a request for information, etc., are dealt with first. The requests contained in letters reaching the bureau cover a range as wide as some of the signals cited by "QRZ." We have the request of the country ham for train or boat information, that of another country ham to make purchases of this and that for him or his family. One such request made the writer feel thankful that he had a YF to deputise for him at a women's department of a city store. Again, a listener writes stating he heard a signal on the 7 mc band! He mentions that his receiving ability as yet is only 20 words per minute! but he heard that station signing VK3C something. Could I identify the station for him?! Yet another asks who is this "CQ" all the stations are calling, and could the Qsl manager arrange some slow Morse practice for him over the air. Then the foreign ham writes that he worked VK2—last year, but has not yet received a card. Could I shake up the VK2? Again, the foreigner who

knows he has some relatives living in Melbourne by name of Otoole; says there won't be many Otooles in Melbourne, and could I locate and look them up? And then the Yank asking could I forward him an "aboriginal's skull" in exchange for a fb set of birds' eggs!!!! And another local bright boy, just beginning to raise an interest in ham radio, sees a list of cards on hand in the QSL notes of "Amateur Radio," and writes me for "just one of each" to start off his collection! Truly, this job has its humorous side.

After the correspondence is cleaned up comes the bi-weekly attack on the bundles of cards previous laid aside. These are sorted into "inward" and "outward" bundles. Inward cards are dealt with first, and are stamped and counted, the VK3 being kept aside and the cards for other States sorted into their respective divisions. The VK3 are then sorted into the alphabetical files, separate divisions being used for country centres possessing two or more hams.

A start is then made on the "outward" cards. They are first counted to see if correct charges have been enclosed, and for statistical purposes, and then stamped and sorted into their respective countries and placed in the "outward" list. Perhaps the counting of cards could be dispensed with, but it is interesting to be able to see at a glance the number of cards handled in any given time. The figures for the bureau since its inception in 1931 are:—

Year.	Outward.	Inward.	Total.
1931	5,792	3,998	9,790
1932	9,706	8,627	18,333
1933	9,157	9,529	18,686
1934 (to date)	3,498	4,002	7,500

Grand Totals 28,153 26,156 54,309

I cannot tell you the total acreage their area would cover, or how many times around the earth they would reach if placed end to end, but these figures provide an interesting study and should effectively silence those who continually bemoan that hams do not QSL. Peculiarly, the inward and outward totals roughly balance themselves, proving genuine reciprocity.

Twice monthly despatches of Interstate cards are sent out, but the real work commences about the 26th of the month, and the avalanche of cards, inward and outward, continues until

around the 10th of the succeeding month. Towards the end of the month the VK3 files are inspected, and the contents subdivided into the following groups:—(1) Cards for country members; (2) cards for members attending the monthly Divisional meeting; (3) cards for hams desiring their cards posted; (4) cards for non-members, listeners and metropolitan members too disinterested to attend the monthly meetings. This last group is the bugbear of the bureau, causing endless repetition of work and clogging of the files, and among this group are the hams who do not value cards and those too miserable to forward postage to obtain their cards. After the distribution of group 2, the cards of country members and those in group 3 are posted, due entries of the postage on the latter being made in the ledger. Many of this group keep a credit balance at the bureau, necessitating bookkeeping, but facilitating the despatch of their cards and keeping the files more open. When the VK3 are thus cleaned up attention is transferred to the overseas cards, and these are despatched, together with another despatch of Interstate cards. Some idea of the work entailed may be gleaned from the fact that the usual end of month postings average around 100 letters and packets, and cost £1/10/ for postage. These have to be addressed, weighed, correct postage affixed, and then posted.

During the brief respite between the 10th and the 26th of the month the QSL manager enjoys himself by occasionally going on the air and by revising the VK3 Qra list, from the monthly supplement issued by the P.M.G.'s Department. In passing, it might be mentioned that the old adage, "It is cheaper to move than to pay board," has never been better exemplified than in the case of hams, as it is not uncommon for a ham to change his QRA as often as five times a year. Then the list of overseas bureaux constantly needs revision. This done, the VK3 files are again inspected and cards for pirate and unlisted stations removed, together with any that have lain six months at the bureau. All these are returned with a suitable endorsement to their senders. A poignant and painful reminder of the "end of all flesh" is brought to mind by the arrival from overseas from time to time of cards for hams and listeners deceased since

the QSO took place, or the report was sent out.

In conclusion, and braving the wrath of the Editor for utilising such an amount of valuable space, I would like to bring under notice a few hints and rules designed to promote smooth and efficient working of all bureaux. They are:—

Inward Cards.

- (1) Send your cards regularly. If possible, keep a supply of stamped envelopes at the bureau—the manager will not use them for his private correspondence.
- (2) Send envelopes approximately 6 in. x 4 in. Smaller envelopes necessitate folding your cards. Larger envelopes do not fit the files.

Outward Cards.

- (1) Send your cards regularly.
- (2) Affix correct postage to your letter or packet. If a packet, do not enclose any letter, and do not seal against inspection, otherwise letter rate applies. Tying neatly with string is the sensible method.
- (3) Enclose correct QSL charges—no more, no less.
- (4) Write plainly and print the call sign. Sharpened matches seem to be popular as pens, but the resultant hieroglyphics consume valuable time in deciphering.
- (5) Write the call sign on the back of the card—QRA, too, if known.
- (6) Group all cards for the same country or State.

Observance of the above simple rules will earn the undying gratitude of your QSL manager, speed up the handling of your cards, and make more time available for the QSL manager to QSO you.

Taking into consideration the sorting, counting, stamping, despatch and distribution of cards, revision of lists and QRA's, voluminous correspondence and time entailed in carrying out of requests of country and overseas hams the handling of every 100 cards averages out at occupying nearly two hours of your QSL manager's limited time. The bureaux throughout Australasia are efficiently managed by hams for your benefit, both as to saving of your time and your money. It is up to you to do all in your power to lighten their job. Observance of the above rules will help LOTS.

VICTORIAN QSL BUREAU.

Notes for June.

Cards are on hand at the above bureau, 23 Landale street, Box Hill, Victoria, for the following stations:—VK3BC, BP, BE, BX, CA, CB, EG, ER, ET, FC, FM, GA, GU, GW, JL, JN, JW, KO, LP, LZ, MM, NC, NG, OX, OZ, PK, PN, PZ, QJ, QX, RN, RW, UJ, VU, WD, WK, WX, XK, XO, XQ, YE, YF, ZG, ZK, ZY, ZL.

The above cards will be forwarded on receipt of stamped envelope.

Information has been received that a bureau not connected with the W.I.A. or A.R.A. has been set up in another State. As W.I.A. bureaux are functioning well in all States, stations are warned against dealing with unauthorised bureaux, as no reciprocity exists between these and W.I.A. bureaux.

A supply of Centenary stickers, for attachment to DX cards, is available at the bureau, and quantities of the stickers will be forwarded to any station on receipt of stamped envelope.

We regret to chronicle that VK3XQ (A. Baldock), while riding a bicycle, tried conclusions with a motor car and sustained injuries sufficiently severe as to incapacitate him for some weeks. He is at present convalescing at the Melbourne Hospital Convalescent Home at Caulfield, and would be pleased to receive a visit from any ham. We wish him a complete recovery, and a speedy return on the air.

Stations are reminded that sending cards to unlisted Japs, is a waste of time and money, as these cards are invariably returned with the usual polite slip on the back. Although some of these stations are now licensed, the remainder are merely "pirates."

Recently a number of stations have appeared on the air signing F3 calls. These are located in France, and it is believed that F3 call signs are being issued by the French authorities.

FBSYX is situated in the Reunion Islands, not Madagascar as is popularly supposed. He claims royal blood, and is always keen to work and qsl VK stations.

R. E. Jones, VK3RJ,
Qsl. Manager.

Harmonics

Any ham desiring to qsl W4MS may do so via VK2AP, who will also guarantee that a card is forthcoming to any ham who has not received a qsl from W4MS.

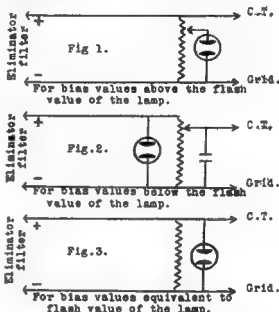
VK3LN recently wanted a crystal on 190 metres. He purchased a pebble for 1/. and upon testing it found that it oscillated strongly on the desired frequency without any grinding. Wish that 3500 KC xtals could be obtained like that.

VK3YJ is frequently heard calling VK2ET, Canberra, on fone and playing sentimental records. It appears that Geoff has been receiving T9 QSA5 R max reports from a YL in Canberra, so perhaps that accounts for it.

STABILISED "B" ELIMINATOR BIAS FOR R.F. AMPLIFIERS.

By VK2ER.

The following is a method of obtaining reasonable stable bias for a



new final amplifier at VK2ER. It was designed to bias the P.A. to cut off and allow keying in the buffer stage, and is a large improvement on straight eliminator bias, where the bias required is in the region of 150 volts. The stabilising element is an Osglim bulb, which was obtained from B.G.E. Co. The bulb was supplied without the base resistor, and has a flash value of between 140 and 170 volts, according to whether the plate or spiral is made positive.

If the bias required is approximately that of the flash value of the bulb it can be connected as in Fig. 13.

When the P.A. is excited the grid current merely bypasses through the bulb. For bias values above and below the flash value the circuits of Figs. 1 and 2 may be applied with, of course, not quite such good regulation, but still better than without the bulb.

A little figuring and sketching will readily adapt this device to stabilise within reasonable limits any rectified bias supply over about 100 volts. In any case below this value batteries are not so expensive as eliminators.

VK3 SECTION NOTES

ANNUAL ELECTION.

As this issue goes to press we hear officially that the great day, about which your magazine staff have been writing so much, draws near.

The annual election of W.I.A., Vic. div., office-bearers takes place on July 18 at 8 p.m. in the club rooms. This year the retiring council would be gratified to see a poll returning 100 per cent. of the possible votes. There is no reason why this should not be so, particularly if those of you who have a vote have read the editorials for April, and the current issue, especially the latter.

In an effort to help achieve the above 100 per cent. object we shall herewith endeavour to give a few hints on how to nominate your candidate and how to vote for him.

Nominations should be written out as shown below. The proposed candidate and those nominating must be financial full members. The nomination form is self explanatory, viz.:-

To the Secretary, W.I.A., Vic. Div.

Sir,-

We.....(John Smith)

of.....(Brunswick)

and

.....(William Brown)

.....(Footscray)

hereby nominate

Mr.(Robert Burns)

of(Essendon)

as a candidate for election to the council of the above institute.

Dated this.....day of.....1934.

Signed(John Smith).

Signed(W. Brown).

I.....(R. Burns), the above nominated candidate, hereby consent to act on the council of the above institute if elected.

Signed.....(R. Burns).

It is positively essential that nominations be in the hands of the secretary not later than June 17 (and we hope the mail bag is full).

Ballot Papers.—On or before July 8 financial full members will receive a ballot paper, which must be duly attended to in the manner prescribed therein, and then returned to the secretary W.I.A., Vic. Div., before noon on July 17.

The magazine committee sincerely hope that after the two editorials given on elections, those associate members who read them will now wish that they were full members (and its only another 4/2, too). If the writer does not damp his enthusiasm this article will surely develop into another effort to stir up a riot on July 18).

The president for 1934-5 will be elected at the general meeting, and you should use your vote whether in person or by proxy. If you are not able to be present at the general meeting on July 18 send along your proxy in the possession of one of your friends as set out below, viz.:-

I.....(Alan Cox), a full member of the institute, hereby appoint Mr. (Bill Jones), also a full member of the institute, to act for me as my proxy, and in my name to do all things which I myself, being present, could do at the meeting of the institute to be held at on the 18th day July, 1934.

Signed.....(Alan Cox)

Witness.....(Sandy McNab)

Now, here is an opportunity to show your individual interest, whether you are a student, associate or full member. The council would sincerely appreciate applications for the positions

of secretary and treasurer, and all members are being given the opportunity to apply for the positions. The applications will receive the jurisdiction of the incoming council, and, of course, all applications will be dealt with in strictest confidence.

The institute wants a "live" executive. Here is the opportunity for that person who is not available for council membership, but who feels he can really be of active service to his fellow-amateurs of the W.I.A.

Key Section

(Conducted by L. T. Powers, VK3PS.)

These notes are actually written from Narracoorte, S.A., as 3PS is spending a couple of weeks roaming round, and not having the notes taken at the last K.P. meeting there is not much about the Melbourne gang. In the Western District all the hams visited seem to be rebuilding. 3EX at Colac has not been on much lately; says condx there have been very bad. 3NZ, Terang, has almost finished an ft new rig with a tri-set oscillator and 69 doubler. He uses fone mainly, and has been getting some ft results. He says there will soon be a couple more hams in the town. 3DX, at Warmambool, is QRL. Pictures every night, so has no time now for dx, but annoys the BCLS with 200 mx fone every Sunday. He is just building a new 3-stage job finishing up with a 211E. At Narracoorte, S.A., 5XR is off the air at present—a genuine case of QYL as in April "Amateur Radio" (but she won't let him down that way). This town will also have another ham in a few weeks. He has his AOPC, and is just waiting for his licence to turn up. Will probably sign 5XL, and is planning an ft xtal rig. We should hear some vly fone from him, as he has 3PY's condenser mike.

On July 11 the annual general meeting of Victorian division will be held, and it then rests with the full members of the division to see that they have a council that will further their interests and keep up the improvements that have been made during the present year.

It is up to you to see that anyone that you think will be a good man for the job is nominated in correct form before June 27.

VK3 Phone Notes

Now, firstly, we have a very important reminder for the country phone chaps. All country stations on the 200 mx phone band who wish to continue transmissions from July 1 to September 30 must make application to the country allocations officer, Mr. G. F. Thompson, 3TH, before June 14, otherwise no allocation can be considered until October.

The competition committee met on Tuesday evening, May 15, when a fair amount of work on the subject of handicaps and other more minor details was completed. Up to the time of the last phone section meeting the following is a list of entries received:—Stations 3LU, BY, JB, TH, AM, KE, HF, JR, BH, CB, CR, BI, PA, GK, SB, LN, OV, JT, XL, DH, WF, FY, YF.

At the competition committee meeting a very lengthy discussion took place on the handicapping subject. It was finally decided to handicap on power only. This did not clean up the difficulty in one go, since we realised at one juncture during the discussions that unless all was carefully thought out and a limit placed on

AMATEURS!!

- You can obtain your Radio Accessories from Hartleys Sports Stores at Wholesale Rates.

- **VALVE TESTING FREE !**

All Makes and Types of Valves Tested on Australia's most modern Testing Apparatus at 272 Flinders Street Store.

- Special Mail Order Service.
Radio Accessory Catalogues
Post Free.

HARTLEYS SPORTS STORES
MELBOURNE

the "points start" given for lower power we would perhaps get the Q.R.P. merchants on .001 watt, getting the grand total of 16 points for a start off.

The committee has decided to count 25 watts input power to the final amplifier stage of the transmitter as scratch, and one point start is given for every 1.5 watts under 25 watts. As an example: if a station is operating with a power input to the final stage of 14 watts, 7 points will be added to the score gained by this station under the "points awarded" formula, as published last month:—

	Points maximum.
Quality of modulation	50
Depth of modulation	30
Smoothness of carrier	20
Freedom from frequency modulation	10
Selection of programme	20
Stunt transmission (finalists only) ..	10
	140

The maximum addition of points for low power will be 10, meaning that there is no object in using less than 11.5 watts power input to final amplifier.

This system of handicapping was put in the form of a motion moved by 3TH and seconded by 3BY. The committee made a further decision "that the finalists in this competition shall be six in number, of whom at least two shall be country stations," and whilst on the subject of country stations those who are not at present active may send along their entries just the same, since permission may be obtained to continue transmissions as from July 1, provided, of course, as mentioned earlier, application is made before June 14.

Boottle, of 3KW, Geelong, did not send in news of the gangs' doings down there.

Although conditions for B.C. band DX are infinitely better now than around about Christmas time, we don't seem to hear as much "rag chewing" as we used to. The weather must be too cold for the troops now, particularly in a draughty shack at 2.00 a.m.

3KE was heard on Monday morning, 21st, calling a "2" at about 1.00 a.m. You seem to be always in the shack, Ern; if not on 1350 K.O., somewhere on 3500 K.O. How do you find the time, O.M.? Some time back a rather interesting experiment was put over from K.E. in the form of a S.W. rebroadcast. The counterpoise whilst being used in the ordinary way for transmission on 1350 K.O. was being fed to the short wave receiver as an aerial. Signals were being received on about 11,800 K.O., and at the same time transmitted on 1350 K.O., the same signals as far as the audio frequency component was concerned; quite simple to perform, but no doubt a complicated action was taking place in the wires of the counterpoise.

2AM, St. Kilda, was heard making strange and weird noises on Monday morning, May 21. Arthur was doing some grid modulation experiments, and said he wanted to watch the ant. amps (?) go up (or down) with a constant audio frequency note. How about a report on "the findings" in the form of an article in "Amateur Radio," O.M.?

A letter has been received from 3OY, and the gang will be pleased to hear that he is recovering from his illness, and is looking forward to the time when he will be back on the air again.

On behalf of the boys, Arthur, I'll say that we all hope that you make a very speedy and complete recovery, and will be glad to see and hear 3OY back again.

COUNTRY NOTES WESTERN DISTRICT NOTES.

By 3HG-3OW.

3GO has left Camperdown for Bairnsdale, and no doubt has his gear on the air again from there. With his departure the QRM at Camperdown has been lessened considerably.

3NK is at present using the BCL 280 for his '45 tube, and getting some DX with T9 reports, with his TNT.

3GQ still working W's and VE's, though not on very much.

3LB, of Colac, has rebuilt his xtal rig. With 3KX he recently paid a visit to 3GQ. Though some doubts were expressed as to whether his home assembled car would take them home, they evidently got there O.K., as no hams have been reported missing. 3KX relatively inactive, but still about the most consistent Western District ham. He is now using separate rigs on 7MC and 14MC, and is looking forward to licking 3GQ in the Centenary contest. A good struggle is anticipated between these two boys for that 852.

3NZ, Terang, keeps mainly to 80 metre fone and YL.

3HG, Coleraine, still as active as ever.

3OW is off the air for a few days, owing to some of the gear being in a radio exhibition in Coleraine. A specially polished transmitter was built for this purpose, and worked surprisingly well.

Conditions on 7MC fairly quiet here at present; best DX being W, VE, OM, TI, OM.

VK3PG still putting out a great signal with QRP, and a few days ago was heard working a Yank. This is an fb performance, considering that only 4 watts is used.

By this time next month VK3OW hopes to have his gear moved into a more commodious shack right away from the house.

We were all very sorry to hear of VK3OR's illness, and hope that by now Murray is well on the way to recovery.

NORTHERN DISTRICT NOTES. VK3WE.

As anticipated, the approach of winter has resulted in the household vacuum cleaner being put over many perks, with consequent increased activity on all bands. Despite cooler weather, however, conditions have been decidedly patchy, especially on the popular 7000 KO band, on which, up here, sigs. are most unstable. 3500 KO, as prophesied last month, has increased in popularity, and my tip that anyone using this band would need several xtals in order to dodge the QRM has already proved correct. 14,000 KO seems to be livening up, and DX on this freq. should be good for the next couple of months. Several W's, Ka, and ZL's are at present on with phone. Heard one W7 say he was using 2000 watts. Very few VK2 or 3s heard here; guess we're in the skip. We (3LH and 3WE) tried to work 20 meter phone with 3PY a few weeks back without success, but reports since to hand from VK7 indicate that we were heard there. At present most of our activities are on 80 meters, but several intend going to 20 meters during the winter.

VIA seems well bitten with the 80 phone bug, and some excellent sigs. are heard here from 5MD, WJ, LB, IV, PE, KL and Co. 5QR still on QRP with 1½ watts or less. Tho. the strain is telling on the B. batts; he still raises the ZL's.

We have to welcome to the ranks of Northern Gang Jack Lambert, of Sea Lake, who passed the recent exam., and should have his call sign

by the time these notes appear. Aforesaid gang have cluttered up 80 band quite considerably, 3PY, 3CE, 3ZL, 3ZE, 3WE being very active. 3CH, QRL on a trip to VIS, so the 500 cycle note hasn't been heard since. 3OR is home again, but haven't heard him since his return. 3KE heard occasionally, as also were 3OQ, 3NZ, 3HL and 3NN. The 2UO gang of 25 or more at Wagga still very active. 3RS and 2HU are still threatening to "make the next over the last." 2YX and 2BP still maintain quality and punch, while "Poley," of 7OK, is still growling about shortage of water for his hydro-genny. 3LH has been off, owing to his converter giving up the ghost, and during a recent week-end he paid a visit to old QRA. at Merbein, bringing back, of course, some wild and woolly yarns, which we refuse to credit. Herb sees he was disturbed in one of his early (?) ramblings by hearing a noise like a machine gun, and rushed into a certain shack to find 3CG, pounding brass—a bug wasn't in it. When he spotted Herb he almost forgot who he was working. Anyhow, a most enjoyable evening (oh, yeah) was spent, and after QSO with TRO and 2BP they strolled out to supper, and to get reacquainted with the YL's. The gear at 3CG is really a credit to Johnnie, both for efficiency and neatness. Xmitter unit consists of a four-panel rack housing power supplies 48 S.E. oscillator, buffer and final using 45's in parallel, and with a very make-shift aerial, 6 amp. goes into the feeders with 11 watts on 80 meters. 3CG reports conditions in far north very patchy and at times he can't hear 3AN, Redcliffs, though only 15 miles apart, yet hears other stations give Arch. good reports. While waiting for the converter to come back from VIM 3LH is rebuilding, and by the time these notes appear should be bilaterating the ether again—this time with a four stage link coupled rig., intermediate stage being thrown in as buffers or doublers by one big rotary switch. The best 80 meter sigs heard here for the month came from 3ZX, the Telefunken king, when not working 77's and K6's puts over duplex with 3GM: between them they use 34 tubes or more. 3AL is apparently going to be very active this winter: was seen with a "DX hound" following him around Ballarat recently. 3PY, with more kick than an A class, still moans (like others we won't mention) about the local power supply. When his power drops the A.C. freq. changes, and introduces more noise than a row of ash-cans.

NORTH SUBURBAN RADIO CLUB.

VK3FY.

On Saturday, May 12, the above club conducted a house party at the home of our able secretary, Mr. Frank Maher, where a large number of club members and their friends assembled to spend a very enjoyable evening.

Another evening is to be spent at our president's Q.R.A., and an equally enjoyable evening is assured.

At our meeting held on Monday, May 14, Mr. E. Webb, one of our members, gave a very interesting talk on logging stations on the different short-wave bands. Mr. Webb has a large number of Australian and foreign stations jotted down in his log book. He was listened to attentively, and received a hearty vote of thanks at the conclusion of his talk.

On the same night the president of the club (Mr. R. Dowling) gave members some highly technical information concerning crystals. His talk was illustrated by blackboard diagrams, and proved very interesting and valuable. At some future date he intends to give a further talk on this subject.

The secretary has received numerous inquiries as to why the 200 metre transmitter has been off the air during the last month, and the query can be answered in one word—rebuilding. The whole rig, including the amplifier, is being rebuilt, and when completed should compare favourably with "A" class stations. HI. Our thanks are extended to Mr. Dowling for his good work in connection with the rebuilding of the mitter. The transformers were made by one of our technicians—Bob Bull, and anyone wanting a first-class tranny should communicate with him, care of 3FY.

The membership of the club is steadily increasing, and anyone interested in radio is cordially invited to attend any of our meetings. The meetings in June will be held on the 11th and 25th inst.

The secretary will be pleased to forward further particulars concerning "Our Live Wire" club to those interested. His QRA is 102 McKean street, North Fitzroy, N.7.

—Bill Wonder, Publicity Officer.

NEWS FROM FEDERAL HEADQUARTERS

By G. B. Ragless, Federal P.O.

The members of the Federal executive are settling down again after clearing most of the items of the last convention, the results of which are most satisfactory.

The attention of some States is called to the matter of per capita payments who are behind.

Members are reminded to enter for the QRP contest, this being the second leg of the Fisk trophy competition between all States. Divisional councils are requested to provide prizes for their particular State to encourage the individual rivalry, and by so doing increase the chance of the State concerned securing the major prize. The rules governing the contest appeared in the last issue, and should be studied. After past contests one often hears that the QRP man had no chance, so here is a test made for the low uower man to show his mettle.

W.A.C. Certificates.

We would like to point out to all members that they must forward their six QSL cards to the Federal executive, who will, after satisfactory perusal, request IARU headquarters (ABRL) to forward the certificate direct. The Wireless Institute of Australia is a member society of the IARU, and the above is one of the privileges of being a member. The cards must clearly show that the station has had a contact with a station situated in every continent of the world, and will be returned after perusal.

Traffic Channels.

Whenever possible all divisions are requested to send information to Federal headquarters, via the institute traffic channels. This matter was urged at the convention, and we would like particularly to stress the necessity of each division appointing a reliable traffic manager. The radiograms are used to shorten the time of communication between Federal headquarters and the States, but we would like an official letter to be sent confirming the messages. The messages are always very short without any unnecessary words, so the following up of a letter is really always required.

THE ASSOCIATION OF RADIO AMATEURS (N.S.W.)

A.R.A. FIELD DAY.

The Association of Radio Amateurs (N.S.W.) held their first field day on May 6. It was a great success, especially considering the weather in Newcastle and Sydney.

The proposed starting time was 8.30 a.m. from Sydney, but at 9.35 the last car got away. The secretary's car, 2GS, had installed an xmitter, two-stage xtal controlled on 80 metres. The last members of the party were picked up at Hornsby, and a more or less uneventful journey was completed for the sixty odd miles to Wyong. By 12.30 the Newcastle gang, including 2SO, 2KB, 2OF, had arrived. We looked everywhere for Stan, but he wasn't to be found.

About 50 hams sat down to lunch at the showground, including 2WG, 2TX, 2OK, 2XP, 2OC, 4GG, 2EZ, 2LZ, 2AE, 2AH, 2DR, 2GS, 2MR, 2OF, 2KB, 2HZ, 2SO, 2KA, 2VG, 2UP, 2UL, 2EL, 2PV, 2UX, 2JX, 2YS, 2QK, 2DA, 2NW, 2JH and 2AG. Also there was Mrs. 2DA, Mrs. 2QK, Mrs. Power and Mrs. Whytemead. The luncheon was a great success. 2UX, the president, was chairman. The toasts drunk were:—The King, the A.R.A. and Associated Clubs. 2EL replied for Zero Beat, 2WQ for Manly, and 2KB for Newcastle. The Wyong gang was the last toast, and 2TX and 2OC replied.

After lunch the various transmitters and receivers were aired, and 2OC worked a transmitter from his shack, using the same xtal as was used by 2WI. 2WI was set going at 3 p.m. in the hidden location on the banks of the Wyong River, and sent out a general call. The transmitter was a two-stage xtal rig, with Telefunken modulation, operated entirely from batteries on 3.5 mc. The batteries were kindly loaned by Diamond Widdis Battery Co., and they served their purpose excellently, standing up to a current draw of over 60 miles for four hours. In addition to this they were used in the mobile transmitter in Bob Power's car. The antenna was a half wave bent Hertz.

The first sign of the seekers was some 20 minutes later, when 2VS passed down the road about 100 yards away, but nothing further was seen or heard on the right side of the river until about four o'clock, when 2VS and 2GS were seen coming up the track. 2GS was first in, as it was his receiver. At 4.20 Manly Radio Club was second with 2WG's receiver, and 2UL, 2EL, 2VG and 2EA comprised the third party.

Everyone returned to the showground for tea, when the cup was presented to Arthur, 2GS, 4GG, of Chinchilla, was also welcomed. About 5.45 everyone set out for home for a night's rest—well earned.

A.R.A. FIRST ANNUAL DINNER.

The Dungowan Cafe at 8 p.m. on May 17 was the scene of the Association of Radio Amateurs' first annual dinner, and which by 10.30 had proved to be a great success.

Eighty-four hams arrived quite safely, but the safety factor on leaving wasn't quite so high. Representatives from the Radio Telegraphists' Institute, Zero Beat Radio Club, Waverley Radio Club, Lakemba Club, Manly Club and U.H.F. Club were present, and responded to a toast of Associated Clubs.

Among the hams present were 2WQ, 2UX, 2OC, 2TX, 2BP, 4GG, 2GS, 2BX, 2MW, 2WD, 2RG, 2GR, 2HO, 2DA, 2NW, 2AG, 2EL, 2UP, 2AH, 2DR, 2BZ, 2HG, 2PG, 2MQ, 2MY, 2OH, 2HP, 2PX, 2IO, 2FQ, 2JX, 2XV, 2HZ, 2CW, 2YA, 2UL, and quite a few others.

Some of the sidelights included Eric 2BI's ability to make speeches, the Manly gang's ability to partake of a little light refreshment (who were the two hams fencing in Martin place with lilies?), 2YM's first aid to a lily and the whereabouts of 2OK, Jack Cambourne, 2PG, 2MQ, 2BP after the close. Anxious mothers were still ringing up the secretary at 10 a.m. next morning. The ability of the average ham to take a long draught—no three times three for them. The original intention was to hold these dinners yearly, but owing to an incessant demand it is proposed to hold them bi-weekly. Here's hoping.

ZONE 6.

Owing to severe qrm from d.c. generating gear, 80 metres is the only band used here at present.

2WH, of Forbes, is heard fairly consistently. The quality of fone is not all that could be desired. Sounds as though the mikes needs some attention; seems to raise the z.l.'s ok. 2LM heard mostly on Friday night skeds. Fone is improving. Keep it up, Les. 2NM heard only occasionally with i.b. fone; plenty of punch and modulation, i.b. 2UJ, the qrp. merchant of Alectown, has the complete fone transmitter, receiver and monitor, using 4 tubes, 1 tube transmitter, 1 tube monitor. Uses the two tube receiver as speech amp. and modulator, healing system; has a 6-volt accumulator and home-made vibratory transformer for power supply. Some of the Dubbo gang heard on the B.C. band Sunday mornings. Fairly 'orrible fone.

ZONE 7.

VK2FI, Z.O.

During the past month there has been a fair amount of activity on both 40 and 80 metres. 2WA has just returned from Noumea, where he was listening for 2TA on sked without much luck. Beckons KA's and J's came in O.K. in spite of bad QRN. Since returning home Jack is busy rebuilding, and making way for a couple of 203A's. 2LB still parked on 200 metres, amusing the BCL's. Allan now has a commercial ticket, but is coming back to the ham bands again, YL's permitting. 2TA has been working plenty of Yanks, but is going to rebuild in an endeavour to get more output on 30 metres. Also has a midget portable transmitter under construction. 2FZ still chases the old DX. Had a go at the ARRL test in March, and landed 1404 points in 52 QSO's. Gordon is now WAC and WBE, and spends all his spare time after DX. 2KD has not been very active lately. 2WO, the transmitter of the Wagga Amateur Radio Club, has been on 80 metres with fone. They are now located at the Wagga Fire Station, and get out very well. 2XF has been using QRP until the new rig is completed; but his fone is very fh here. 2TH is rebuilding as usual. He might be satisfied with that rig some day. Not much heard of old 2PN these days owing to pressure of business. 2GT away from home most of the time, and only gets home for an occasional weekend. 2FI is glued to 80 metres, using a car engine to drive the generator and a three-stage xtal rig. Has been using Telefunken fone with a small measure of success. Guess that's about all the dope for the month, but I'd like to register a kick against these fellows who call CQ half the night without signing properly. Surely they don't expect anyone to answer a CQ which lasts up to 10 minutes or more.

Cheerio till next month.

ZONE 8.

VK2YI is now residing here, with headquarters at 2QD. Both work from the same shack, and a three-stage MOPA is pending. At present Harry's transmitter is in scraps but QD's TNT

is working overtime, and Harry does not believe in being Scotch with the dots (HI).

VK3EG was surprised by a visit from the Albury gang, who went across on Anzac Day to see where 3EG's kick came from. A single 210 in the p.a. was found to be responsible.

Conditions on 80 m.c. have improved, and an occasional W heard on CW. On 20 mc. W6's heard up to R4.

NORTH SHORE ZONE.

ZO.—VK2DR.

2DR QRL? However, here's my effort for the month. As I've been building test gear during the month I haven't had a chance to get on the air much, but was astonished when young Dave Adams 2AE phoned me, and said he was receiving ZT's at R7 on 40. Hopped into it next night. ZL's? Plenty. ZT's? Nary a one. 2AE is VK's youngest ham, having been given a special licence by the R.I. at the age of 14 years. Dave is building an E.C. three-stage rig, using 46s. He is also grinding a xtal, and grinding his teeth because it won't perk. Keep at it, O.M. 80 mx. is collecting more and more hams, all intent on a good yarn. However, the remaining DX on 40 is keeping a lot on that band who would otherwise be rag chewing on 80. Con (2LZ), Bill (3HZ) and Alan (2AH) are having trouble with the BCL's. 2AG has been working his bit of DX on 40, with xtal sig., and still skeds his bro. in VK9. 2AH is getting some very nice cards in from the QSL bureau. Alan is thinking of rebuilding, including good quality 80 mx. fone. 2BA sees his shack once every five weeks when his steamer is in port. Ra, have you seen 2DA's new stick? 66 ft., and right up on the top of a hill. Harry will sure get out fb now. 2DA says that VP1AM (Ocean Island) has received his new transmitter, which was built in Sydney, and will be on the air by the end of May. He shouldn't lack QSO's when he gets going! 2DU is vry QRL business. 2DY has been on 80 mx. a bit with xtal sig., showing slight traces of RAC. 2EL is getting some big tubes. 852's and 800's! Jack, of 2EZ, has returned from Jervis Bay, and has been visiting some of the local shacks. Nil from 2GJ this month. 2GW has been heard on 20 a bit. Jack, of 2HG, has been DX'ing again this month. 2HL has been rag chewing on 80. Horrie wants QSO's on 5 mx., with some North Shore hams. 2HO has been on 40 a bit, using 46s. Roy, of 2HY, has been down with 'flu, but O.K. now. Although he has worked lots of Europeans, 2HY worked his first W on 20 this month! 2JU is rebuilding. 2JY is at large again with xtal RAC, and much enthusiasm, and is using Tri-tet. 2KA is rebuilding everything except receiver. 2ND will have departed for Nth VK4 by the time this is in print. Look out for him, as 4ND, and also look out for him as 4AY, a new B class station! 2ND has been getting amongst a good bit of DX. 2KX has given ham radio the bird, and is doing much "tickling the ivories." 2OE is rebuilding. 2PV has 210s in pp. with a sig., a bit on the chirpy side. Peter has worked his first PK.

2SZ is working ZLs with his 46s, and has new AC rx. 2VG has rebuilt into breadboard style, and finds it better than the upright layout. Rex is keen on playing draughts over the air. Anyone interested please get in touch with him. 2XC is still QRL Uni. Jim (2YC) has been holding minor hamfests at his shop at Miller's Point.

2ZG paid me a visit a week ago. Jim has been off the air for some time. How about throwing a comeback, O.M.? 2ZI has been on a bit with very solid sig. 2CT has been heard with RAC sig. 2YA is coming on again at last with Tri-tet and TBO4/10s in final, and Rex can sure chew the rag when he gets going.

2KM has obliged again with doings of the Manly district hams. Here they are:—2WQ's rig consists of 247 C.O., 247 PD, and 210 P.A. Heising fone, and half wave 40 mx zepp. QRA is 87, Darley road, Manly. 2WQ has some fb Interstate reports of his phone. Hasn't decided to do any brasspounding yet. 2MR. Call sign of Manly and District Radio Club. Fb xmitter installed, and also fb RX. Should be on the air soon with 40 mx fone. Harry, of 2DA, attended the Wyong field day in his little car, accompanied by his YP. 2NG is vry QRL getting bugs out of his A.C. amp., and meanwhile playing tennis by day and chasing DX fone by night. 2NG is one of Manly's fb fone stations.

2UP is now QRL during day, making BCL sets, and hasn't much time for the high freqs. Gess Jim sure rattles that home-made bug at times. 2KM manages to get some DX QSO's when OW asleep. VE5, CT2, and W, QSA5, R5 are in the bag. Gess not so bad for QRP, and collection of junk. 2OE is a new ham over here, with chirpy DC QRI, and has a mania for QSY'ing. He tells me that xtal and QRO will shortly be installed. Well, cheerio, till next month. Tom 2KM.

Well, the first ARA hamfest takes place to-night, and promises to be a great turnout. So long, chaps. CU next month.

WAVERLEY RADIO CLUB.

ZO.—UK2OH.

Well, here we are again, gang, after a very long absence from club notes, and this time our publicity is in the hands of a new officer recently elected. In taking my bow as such I would first like to draw attention to the good work of my predecessor, Charlie Rowles, who was responsible for some very excellent contributions over a period of many years. I understand that in the near future Charles will be departing for "G." If so, the club have to wish him bon voyage and 73, and hope to hear him pounding brass to the tune of a kilowatt or so on arrival back home.

Our meeting to-night marked the election of officers for the ensuing half-year, and that is where yours truly came into the picture. The election resulted:—President, Mr. Gordon Wells; hon. secretary, Mr. F. Garland; and Mr. Harry Martin (VK2FW) is treasurer. The visitor to the meeting was Mr. M. Lusby (VK2WN), who has already signified his intention of becoming a member.

First of all, we would like to tender thanks to the Lakemba club, and also to congratulate them on their recent annual re-union, at which we happened to be guests.

Joe (2RQ) came up to the above meeting after a very long absence, to tell us about a new transmitter circuit he is going to employ on 40 mx. Consisting of a 57 used as a combined crystal and self-excited oscillator, the self-excited portion being tuned to the harmonics of the crystal frequency, it will drive an amplifier operated on either the xtal frequency or the associate harmonics, and it is claimed that the 57 will fully drive a 210 on any band under these conditions. Anyhow, hope it works o.k.

2FW is up on the broadcast band again. This time with serious modulation. Harry modulates a 210, with a 2A3, and says it works very satisfactorily. The quality is really all that could possibly be desired as the modulation runs up to about 95 per cent. on modulation peaks, and Harry says he tried about a dozen types of tubes as modulator before selecting the 2A3.

What's happened to 2XB. A little dicky bird informed me he was QYL, but I refuse to believe it.

Stan, of 2SG, is going M.O.P.A. with an 800

in the final. Think Stan's trying to outdo the clubs TC04/10 as far as getting out is concerned. Q.E.A. is not more than 200 yards or so away.

ZBT installed a 211 in the final, and went "crook" because he only got R9 from Bondi, his ZHP is now putting out excellent fone nightly on 80 mx. Harold is rebuilding his speech amplifier, and has installed a dynamic microphone, thus bringing the station right up to date.

Had about eight chaps up at my shack (20H) on Saturday afternoon, including Mr. A. Slight (22A), from Richmond. The shack is not very big, but we managed to squeeze them all in somehow. Was having some trouble in the transmitter at the time, and eventually discovered a short circuit in the oscillator r.f. drive after the coupling condenser.

Visitors are always welcome at club meetings.

LAKEMBA RADIO CLUB'S FOURTH ANNUAL DINNER.

The Lakemba Radio Club's fourth annual dinner was a great success, and points to a great future for ham radio in this State.

About 60 members and visitors sat down to dinner. The first toast was to the King, and others followed in quick sequence. The R.I. was toasted, and Jack Carroll, 20M, replied on his behalf. Associated Bodies was the next toast. Bob Power replied for the A.R.A., 20N for Zero Beat, 2WQ for Manly, 2XU for Hurstville, 2JX for U.H.F. club, Mr. Wells for Waverley. The foundation members were then toasted, and an old-timer, Charlie Luckman, 2JT, replied. The Ducon cup and replica were presented to 2NJ by 2IC, the president. This cup is won in a transmitting contest run by the club every year. 2YQ spoke on behalf of the B.E.R.U. and R.S.O.B.

The ham members of the club now number over 20, and with Bill Picknell as secretary the future of the club promises very well.

ZERO BEAT RADIO CLUB ANNUAL DANCE.

Another ham social event during May was the Z.B.R.C. annual dance. Everyone voted it a great success. A presentation was made to Harry Whytemeache and Mrs. Whytemeache on the former's birthday. Harry is one of the most enthusiastic BCL's in Australia, and a very popular man in ham radio in N.S.W., an ardent hiker and a Scotchman, and is generally accompanied by a little two-tuber. There were about one hundred present, including representatives from various clubs.

VK4 (QUEENSLAND DIVISION)

The monthly meeting of the Wireless Institute of Australia (Queensland division) was held at headquarters, Heindorff House, Queen street, Brisbane, on Friday, May 4, before a fair attendance of transmitting and student members.

Students' Representative.—Mr. H. Angel selected.

Queensland Bureau.—The address of the Queensland Bureau is Box 1524 V, G.P.O., Brisbane.

Student Classes.—These classes have been reorganised, and will commence on July 1. An increase in fees is to be charged, and the course will contain 26 lectures, delivered by a permanent lecturer. Further particulars can be obtained from the secretary, Box 1524 V, G.P.O., Brisbane.

Transmitters' Section.—Kindly note that this section meets at headquarters every second Thursday of each month, and good attendances are expected.

All correspondence for the institute should be addressed to the secretary, Box 1524V, G.P.O., Brisbane.

4WD is back again on the air, putting out a good hefty signal from his 46 in T.N.T.

4UU reports having landed his first VE4, which, by the way, says he has been after for two years. The old pair 210's must be doing their job o.k.

4HL, Harold ("Smiler") Lynch expects to be on the air shortly, and hopes to make a big noise with a 210 in Hartley.

4MC, A. D. ("Sandy") Macpherson, is at present on QRP, and will shortly be heard on his three-stage xtal rig, which will be a swell outfit when completed.

4WT has been experimenting with the Collins low pass matched impedance Antenna, results so far being fb.

4TS has been holidaying down the south coast.

4GA (Gordon Shearer), kid whacker from the Mt. Nebo State school, met a few of the boys when in VIB, and some good yarns were exchanged. Gordon puts out a good signal from his Qrp, Hartley, using a B406.

4US has now a much cleaner signal since attending to his filter.

4YJ heard testing fone with 4WT, and the quality was excellent. Sounds like a condenser mike being used at your end, Vince. However, it was the best fone heard from you for a long time.

4GG, of Chinchilla, is at present in VIS.

4JM, of Nambour, has been making alterations to his feeders, having reduced the spacing to four inches. Says results fb.

4JB is now using a three-stage xtal rig, 47 Ox, 46 Dub, and 210 in final, and has now a fb T9 signal. Ock still requires Africa for his WAO, so maybe this new rig will bring you some luck.

4GU and 4FB recently paid a visit to the Ipswich gang.

Do not forget the Fisk QRP contest to be held midnight June 22 to midnight June 30.

T3RY.

VK5 (SOUTH AUST.)

Conditions in VK5 up to 20/5/34 have been fairly good. At times it looks as if we might be returning to the old 1925-29 days of DX unlimited. Quite a few of the elusive DX stations have been heard, both during the daylight hours, and at night on 40. The 20 m. band has been excellent during the afternoons, although there seems to be at least 5 Ws on the band to each DX station. Europeans are also being heard on this band in the very early mornings.

The racket on 80 has dropped, and rag chews on phone have come into their own again. While some of the phones are a disgrace to the band, the majority are f.b., being a real pleasure to listen to. 2L phones have also been heard at quite good strength on this band, too.

COUNTRY NOTES.

Eric Trebilcock mentions that he is receiving Europe better at 0730 than at any other time during the day.

5FG, Bern. Rogers, of Balaklava, writes:—"I am using a three-stage c.c. rig, with 47 c.o., 46 f.d., and 210 p.a. feeding a Zepp aerial. The Rx is a two-tube A.O. job, using a 35 det. and

59 aud. Since commencing operations on March 19 last six countries have been worked.

5QR was down in the city from PYAP during the school holidays. Reg uses a two-stage portable 80 m. rig, with the xmt and Rx in one case. The xmt uses a B406 osc. and B409 p.a., with a B409 modulator. Input on phone is 1.71 watts, and about 4 watts on c.w. from 300 v. of B batta. All VK and ZL have been worked on phone on this rig. Recently Reg was QSO with WIGF on c.w. The aerial is nothing in particular, being matched to the xmt by means of the universal aerial coupler described in QST recently. 5AL has gone bush school teaching. He has taken the old 5QR 80 m. portable along with him. The Rx and xmt is a compact little job in a case 12 in. by 9 in. by 4 in., and uses a 415 ccc. with 120 volts of B batta. Telefunken modulation and a full wave Hertz aerial are used. 5AL and 5QR hope to keep skeds with each other, as they are only about 60 miles apart.

CITY NOTES.

5RT tried out the universal aerial coupling with f.b. results. A new single sig. super is being built. The majority of the chaps have seen very little of Bob since his recent marriage. Hope to see you along at the meetings often, o.m. 5WP's new single sig. is all but finished. It sure looks an f.b. job, with its polished copper chassis, double copper shielding, and air-tuned intermediates. The next thing is to get it to work, but this should not be hard, as Bill has spent a lot of time and trouble on it. 5RF was busy for a time blowing filter condensers, but has now stemmed the rush with a brand new 1500 v. working bank. A matched impedance aerial was put up the other week, and seems to work better than the Zepp. First QSO was with VK6 in the middle of the day, and was reported R6.

5RF, who has been off the short waves for some months, hopes to make a welcome return soon. Bob's 200 m. transmissions are f.b., and are getting out well. 5ML and 5MD are two other 200 m. stations whose transmissions are appreciated by the BCL's. 5WR still works DX—VE, W, VP, etc.—with a T9 note. 5LQ recently put in a 50 watt tube as p.a. It is a special high impedance tube, and draws only about 25 mills. at 1000 v.

5RO spends a bit of time grinding xtals, but we don't know whether they always oscillate. Intends to build up a three-stage xtal rig., using 47-47-E406. 5KL recently built his 80 m. rig. into a rack and panel job. The next job will be a 20m. perk, using a 245 in a Hartley. 5NR has been working W, VE, X, etc. Up to date 16 countries have been worked. The phone transmissions from this station are being well reported. 5MW has a nice four-stage xtal rig. going with an E406 as p.a. Grid modulation is used for phone, with an input of 12 watts.

5SU is QRL with air force work, but in his spare time is building up an f.b. freq. meter. 5MD, 5LR, 5PK, 5WJ, 5IV and 5FM are getting a great kick out of their six-way 80 m. phone QSO's. All these stations have f.b. transmissions. Some idea of their enthusiasm can be gained by the fact that 5MD and 5WJ were heard working at 0230 the other Sunday morning. 5MD was heard again on 200 m. the same morning long before a lot of people in the city had even thought of Sunday morning breakfast. Keep up the good work, Doc., o.m.

5WB has been on the sick list, but is hoping to get on 80 m. soon. An all-wave super has just been completed, using 58 r.f., 2A7 det., 3 stages of air-tuned intermediates, using 58s, 66 det., 66 a.v.c., 66 first audio, p.p. 58s second audio, and p.p. 2A3's output. Xmt uses p.p. 210s in the p.a., coupled to a matched impedance aerial, with transposed leads.

5GO was off the air for many weeks, because of neuritis in his right hand.

5RX has a 3-stage xtal rig going, with separate power supplies. Has no trouble in working DX.

VK6 (WEST AUST.)

MEETINGS.

W.I.A., W.A. DIVISION.

At the shack meeting held on May 3 the attendance was only moderate, and members paired off to discuss doings on 80MX tone and compare results. Skeds were arranged, and much dope changed hands concerning the merits and demerits of various modulation schemes. Two notable absentees were BB and BN.

GENERAL MEETING.

May 17, 1934.

The above meeting attracted a good muster of hams and associates.

The president, 6AG, presided, and those present included LJ, LK, BB, RL, ER, FT, MN, RA, KO, KB, GM, PK, JK and CP.

Much discussion was caused by a letter received from the managing editor of "Amateur Radio." After the sixth division editor 6OP had reported on the upward trend of magazine sales, stating that 100 per cent. of the active amateurs were taking the "Mag.," a motion was carried instructing the secretary to write the editor, informing him of the position, stressing the point that all active hams were subscribing and others were gradually being brought in.

Eastern States can have no conception of the trials that WA hams have had these last few years, due to depression. We have seen our own Mag. and Bulletin go out of existence for lack of funds, but we are now doing our best to keep the official organ going.—Ed. 6CP.

To continue with the meeting! Nominations for the new council were received, and council will be elected at a future date.

The business of the meeting having concluded, Aerial Expert MN spoke on antennae generally for a short period.

The brightest feature of the evening was a talk by Dr. Nimmo, of the University, on the Thyatron tube. The doctor, by means of sketches and full detailed descriptions, conveyed to members the possibilities of this wonder tube. A most attentive hearing was given to the talk, and wisely so, as Dr. Nimmo is one of the very few lecturers who can talk on any scientific subject, and convey his thoughts to the most dense of hearers, without using "wheelbarrow" words, which only confuse the layman.

At the conclusion of the talk a hearty vote of thanks to the doctor was carried in the usual manner.

Members gradually dispersed, and are eagerly looking forward to another lecture by this wonderful little friend of the "Amateur Radio" gang.
C. R. Cooke, Ed. 6CP.

GENERAL NOTES.

During the past few weeks the activities of the VK6 gang have been very gratifying. Both on 40 MX and 80 MX things have been lively, and, although no outstanding DX has been reported, some very f.b. contacts have been made with VK5 and VK3 on Telephony on both bands. Active interest has been taken in the 80 MX tone, and quite a few of the boys, young and old, can be heard there.

I remember last 80 mx season only hearing about three fone stations on the band. Now there are at least a dozen, the chief of whom being 6KR, KO, KB, RT, BW, CX, RA, MN, WM, GM, RA and CP, all with fair average stuff.

6SR comes on occasionally, but is not very consistent at all.

Three-way contacts and mixed 40 and 80 contacts are popular, and it is nothing new to hear one ham on fone on 40 calling another chap on 80.

GRA has blossomed out with some f.b. fone on both bands, and many 40 MX contacts have been made with VK2, 3e, and 5a.

RW, the go-ahead country lad, has at last got some decent fone, and anchored his frequency. Heard working VK3 for a qsa 5 R5 report on 80.

6SA doing a bit of CW with ZLs, and by the sound of his sig. the shack must be in order again.

Old DA woke up the other night with a bump on 80, and put out a good hefty xtal sig.

KB at last on xtal on 40, and not so bad either, but says there is no DX to get.

OP still looking for a decent mike, and keeping sked on 80 with 5KL on Sunday evenings 1200 GMT.

GM, after getting everything ready for some high-class fone, dropped his Ribbon Mike with serious results, but has been since heard on 40 MX.

MN trying Electron coupled, and has just at present got things O.K. till something slips.

KO sticks to MOPA, and his fone now f.b.

Likewise KB, after trying to get a first-class modulator going with small funds, came to earth with Heising and good reports.

RT puts fone all the way from Greenough from a Lizzie Coil supply, which is rectified and filtered.

Taking things all round the quality of the fone is O.K., and as QRP is the order of the day in VK6 there should be a good time coming during the winter.

On CW can be heard 6FO, HD, FM, DA, DH, as well as all the fone experts who have not entirely deserted the key. Seventy-five per cent. of the gang are on xtal, and the others hope to be soon.

6RL or 6LW not heard much lately, but both have other very pressing business to attend to.

Say, gang! I want a technical article or a description of your station every month from this on, and everyone must oblige, so get to it.

VK7.—TASMANIAN DIVISION.

By 7NC.

The usual monthly meeting of the division was held in the club rooms on May 1 before a fair attendance. Mr. Allan (7PA) delivered a very interesting lecture on transformers, and their construction, and no doubt many of the listeners afterwards had visions of building transformers with umpteen thousand volts output, and with an efficiency of not less than 100 per cent.—perhaps. During the evening the final arrangements regarding the annual meeting, to be held next month (June), were discussed, and it was agreed that a field day would help materially to provide an interesting and enjoyable week-end, especially for the visitors, as they have few opportunities of taking part in these outings. With the large increase in members of the institute during the past 12 months it is anticipated that the coming annual gathering will be the biggest yet held. So roll up, and be sure you are amongst the gang during this one and only event of the year that brings you in touch with your country members.

At some of the previous meetings of the institute warm discussions ensued regarding key clicks, key thumps, blanketing, etc., and after each member had given his views (and nearly all of them differing) it was decided that a modern receiver should be built so that a check could be made against those stations who were supposed to be causing interference. Shortly before the receiver was put into operation Mr. Buring (7RB) suggested that the system known as blocked-grid keying should be tried. This system was tried at 7NC, and resulted in immediate success. Since then other amateurs in VII have installed the system with equal results.

Since the last notes our old friend 7CH has been transferred to VK3, and at a farewell gathering in the club rooms many of the members were present, and wished him the best of luck.

Many of the VK7's can now be heard on 80 mx., where some fine QSO's with the mainland and New Zealand are being made. The 20 mx. band is O.K. for W QSO's during the afternoons, but most of the gang have their activities on this band confined to week-ends.

R.A.A.F. Wireless Reserve Notes



VMC

Total No. of Messages **497**

Average per Station **29.25**



VMB2

Total No. of Messages **114**

Average per Station **38**



2B5

Total No. of Messages **66**

Federal Notes by the C.O.

These notes were compiled on May 16, the day of my departure for New Zealand, and consequently many items of interest will have to be left over till next issue. However, the appointment of VK3DM as the Director of Communica-

tions and Federal Guard station working under the call of 1A2 is recent. The amount of work, office and otherwise, at headquarters necessitates someone to carry on the training and work over the air. 1A2 will conduct all Federal watches with the District Commanders, and, act as a traffic feeding station.

For the third time VMC district is being called upon to carry out work in conjunction with the R.A.A.F. at Deniliquin towards the end of the month. This is the course chosen for the cadets' cross-country flight prior to being passed out. A channel of communication must be established between there and Point Cook for the period of the flights, and this is left to the reserve to provide. A full story of this will be found in the VMC notes.

October 29 to November 3 has been chosen as the period for the amateur convention combined with the reserve convention in Melbourne during the Centenary celebrations. Many members have expressed their intentions of coming down for the fun, and it cannot be impressed too strongly that those who do intend migrating here should let their District Commanders know early, so as accommodation can be arranged where possible. The R.A.A.F. has signified its intentions of co-operating with the reserve during the convention, and indications are that all will have very good time.

SECOND DISTRICT. (2ZL—VK2BP.)

Training commenced with three sections at the beginning of April, and now that VMB is in action it should not be long before a contest will be staged for competition between the various sections. It is noticeable that some members are not keeping watches, but it is hoped that ere long they will find the necessary time for activity, especially when they know that by missing watches they are keeping the other members back. It has been pointed out previously that proficiency in reserve operating can only be arrived at after extensive practical training, and this training is more or less confined to traffic handling. I have stressed this point in district broadcasts, and, although the traffic returns for the first monthly period are promising, they are, to say the least, disappointing.

New member are slowly appearing, and by the time this appears in print it is hoped to have a fourth section in training.

The most consistent VMB stations are 2B2 and 2B5. These chaps have never missed a watch. Others who have proved enthusiastic are 2A1, 2A6, 2C1 and 2C3, and I have no hesitation in saying that if all VMB members were as consistent as those mentioned New South Wales would be a bumper district.

The present watches are as follows:—

Sundays commencing 0900—District watch.
Mondays " 2000—VMB1
Tuesdays " 2000—VMB2
Wednesdays " 2000—VMB3

It is hoped that next month we will be able to give a more glowing report on VMB activities.

Traffic—

VMB1—None reported.

VMB2—2B2, 35; 2B5, 66; 2B6, 13; total, 114.

VMB3—2C1, 8; 2C3, 10; total, 18.

D/C—2ZL, 42; total, 42.

VMB total, 174.

THIRD DISTRICT NOTES. (VK3UK—3ZL.)

Events are tumbling over themselves thick and fast this month—new members enrolling, a portable station at Deniliquin, the forthcoming relay contest, and possible amalgamation of VMC and VMG.

Each year in June VMC holds a relay contest lasting a week, in order to determine the crack traffic handler for the year. A trophy, consisting of a silver eagle, is presented to the winner at the reserve convention, and is held for the year by that station. 3D4 is the present holder,

but as Murray is very ill it is more than likely he will be unable to defend his title. It is very unfortunate, and all stations are hoping that he may even yet be able to compete, because he would put up the stiffest opposition to anyone wrestling the title from him. This year the contest is more open than ever before, as there is such an even standard of ability and efficiency throughout VMC. Quite a number of stations here can send and take 30 W.P.M. and over, but in a contest such as this one's speed is limited in each contact by the speed of the slower man, thus the winner needs to be a man of all-round operating ability, with a thorough knowledge of procedure first, and a high speed man second.

3C2 came down to VIM early this month to meet 3D4 after his trip to Java. They dashed straight back to Kerang almost immediately, so we had very little chance to see much of them. Our country members always seem to be in a rush when they come to Melbourne. 3B4 and VK3GJ, who used to be 3A2, "blew in" for a short time, and 3F2, who is moving to Bairnsdale, has had a short time here on such occasion when he has passed through. 3E5 was down in the city on business for a few days about the middle of the month, but was too busy with the object of his visit to have a chance of more than seeing the city boys. 3C5 has made a welcome reappearance after an enforced absence of some months. If his traffic handling on the last two Sundays in this month is any criterion he has lost none of his operating ability, and his flat is as good as ever, despite his long period off the air.

Every year about this time the cross-country flights, which are part of the CAF training, take place. Again this time they were to Deniliquin, and at very short notice 3C2, 3B1, 3B4 and 3B5 made the necessary arrangements and went across, erecting a station on the landing ground. They kept 100 per cent. communication throughout the exercises, with VJS sending weather reports and arrival and departure messages of the machines as well as arranging by radio all the multitudinous details coincident with a flight such as this. Altogether it was a perfect example of the co-operation 100 per cent. efficient reserve members can give the RAAF at a moment's notice. 3C2, 3B1, 3B4 and 3B5 are to be congratulated on their great work.

It is possible that VMG will join forces with VMC as one of our sections, and we extend a hearty welcome to their members. So as to assist them in getting to know all VMC stations we extend to them a very cordial invitation to enter for our relay contest, and wish them the very best of luck.

We note from other district notes this month that stations are already making arrangements to come over for the Centenary. Great stuff, indeed! We will guarantee you not only a hearty welcome, but will do everything possible to ensure you a rattling good time. Remember, the more the merrier!

FOURTH SECTION. (4ZL.)

Sections and call signs have now been allotted in VMD, comprising two sections scattered over metropolitan and country districts. Most of the members seem very keen on watch keeping, which indicated good support for future work. Watches are at present being conducted on 4155 KCS Sundays, 1900 hours. VMD2 intend providing at least one mid-week watch for the handling of additional traffic, which will be created.

4A1 and 4B1 are the first appointed section commanders, and 4B1 pays a weekly personal visit to the D/C shack, and is very concerned with the work of VMD2, and expects his section to put up the highest VMD totals.

Traffic totals.—4B1, 3; 4ZL, 2.

FIFTH DISTRICT NOTES.

By 5ZI (VK5SU).

Broadcasts are still being given each Sunday at 9 a.m., 6555 being used for the broadcast and 7317 for section working. 5MY and 5RH should receive their training manuals this week, and this should result in a strong first section.

Schedules with VMF have been very difficult to keep, signals not being audible at times.

We are losing a good operator in 5ML, who has gone to VMO to train for the navy just as his enrolment has been completed.

5A2 has been on low power with his portable, but expects to have his c.c. job going when he settles down again.

5ZI and 5A1 will be visiting VMC in October, and since 622 will also be going there should be no difficulty in getting a representative from each district.

Several non-members have made inquiries about the reserve, and these will be given a copy of the circular compiled by 1A1 as soon as it is received.

5B5 is not active at present, since he has to work on Sunday morning.

It is intended to inaugurate a night watch within the next week or so. Tentative arrangements are for 2200 hours Sunday evenings on 3.5 m.c.

VMF stations have been heard on 6555 on Sunday mornings, also VMO stations on 3.5 m.c. same time.

SIXTH DISTRICT NOTES.

6ZI.

A move has been made to the lower frequencies this month. 6A2 got into difficulties with his transmitting gear, with the result that he is now building an E.C. oscillator, and is keeping his c.c. transmitter for 7 mc. Two new call signs have been allotted in 6A3 and 6A4, so VMF is gradually gathering strength. The roll calls have not as yet been very well attended, due to various reasons. 6A1 is working every day and night getting the new broadcasting station ready, but he will be back on watches as soon as that is finished. Good operators are scarce here, and 6A1 cannot be let out of sight! 623 is contemplating going to VMC for the Centenary, so look out, you VMC gang.

SEVENTH DISTRICT NOTES.

(7ZI.—VK7RC.)

VMG seems to have a "hoodoo" on it lately! The main item of business is arranging transfers and accepting resignations!

7B1 has forwarded his resignation, owing to lack of interest shown by the Hobart transmitters, and also to the departure of VK7OH from Hobart. 7B1 could not receive the B/Cs from 7ZI, and VK7CH received them for him and passed them on later, so that 7B1 has no other members to receive for him.

This leaves VMG with three members, which is not many for a district! It has been suggested that VMG members form a section of VMC, and thus carry on with the reserve work. The remaining members are all proficient in procedure, and it would be a pity if they were to drop out owing to lack of members, so that it appears likely that we will join up with VMC. 7ZI remarked in last month's notes that VMC would have all the good members from VMG shortly, but did not expect it to come about in this manner! Nevertheless, VMC, you will have to put up with our presence shortly. I have a silver cup here, which I may donate to VMC for a competition as soon as we get going with you!

A few items of interest in regards to the quarters work, carried out in VMG, may be of interest to the other districts.

The highest number of members we had at any

period was five, and not one single B/C or watch was missed by any of these members. A B/C was given to all members by 7ZI, each week, and every Sunday morning devoted to traffic handling.

A total number of messages handled by these five amounts to 940, and the number of words in these messages is 17,117.

At the present time these members are carrying on, awaiting word for the time when we are to commence operations with VMC.

Traffic totals for May:—7ZI, 28; 7A1, 20; 7A2, 12.

Correspondence

"QRZ" IS STILL WRITING.

Well, who gets up in the mornings this fine wx to see if the DX really isn't there? Condx seems pretty punk round this part of the globe. North Americans come in well at times, with the Canadians more active than usual.

2BP has QRO, which gives him rough note. Pity the sigs don't go straight off the mountains instead of landing here RMax. 2UY and 2WZ, another couple from N.S.W., with rough RAC.

2FK is another one of those chaps who seem to use 25 dcc for their tank coils. When keying the vibration makes the sig go from DC to RAC.

Yes, 3EG, I quite believe you when you say the old 210 is pulling 180 mills, with amps in the sky. Signal has a modulated RAO effect, which makes it audible a fair distance either side of the carrier.

I think 2MY takes the biscuit this month with his RAC note. And 3RW has not yet become modernised. Heard with that very rough note as of yore.

Yes, 4UZ, I guess you were quite right when you said that your fone would be better on 30.

4KX and 4FW also rough RAC.

2NH has a different sig now. It's chirpy RAC. Fone on 40 at night in Queensland seems popular now. Heard 4WT and 4VJ one night.

I don't suppose there is much DX about now for fone stations to spoil on 40. Still, it isn't much of a band for fone, anyway. 2EH covered a large-sized slice of the band with his chirps the other night.

Heard 2ML tell a W7 that he was using a 211E with some watts input. Sounded like it here, too. Would have been fb signal if it was PDC.

3MX has very nice T9 note, with clx well suppressed. And, talking of suppressed clx, reminds me of 5MY's funny sort of signal with no clx.

4RM was rough and broad when heard calling 4OK one night.

5JO has one of best T9 sigs in VK5, but evidently his receiver isn't so hot, as he didn't hear 'hat W7 call him.

Say, 5XU, why don't you live up to the reputation of your VE2 namesake instead of using that RAC note.

2XI' has real good sig on 40 and 20, and I guess that all the DX stations have his frequency marked on their dials.

4DC heard with very chirpy DC. This wobbly coil business is rather prevalent these days, with 29Q the latest addition.

2IY almost like that power leak I write about every month. 2DA has big hefty ripple in that NDC note.

Apologies, 5MV, that was FB T9 signal I heard you with recently. Come on, you Interstaters, don't let the VE3 chaps do all the articles in YOUR magazine. Did you read the MAY editorial?

THE NEW MICRO-SENSITIVE SERIES RADIOTRONS

WITH **5** GREAT ADVANCES

1. **MORE EFFICIENT CATHODES**
assure uniform performance throughout life.
 2. **HIGHER VACUUM**
results in quieter operation.
 3. **COOLER GRIDS**
prevent fluctuation in volume, due to erratic valve performance.
 4. **PRECISION CONSTRUCTION**
makes every valve a "matched" valve.
 5. **IMPROVED HEATER DESIGN**
reduces hum—eliminates crackles—and gives quick action.
-

RADIOTRONS

(Advt. of A.W. Valve Co. Ltd.)

"PORTABLES."

By 2NS and 2YB.

Some time ago Trevor Evans (VK2NS) and Bill Lewis (VK2YB), who are both enthusiastic motor cyclists, conceived the idea of using portable radio in conjunction with the Australian tourist trophy motor cycle races, which are an annual event in the Bathurst district of VK2. When the idea was put to the Auto-Cycle Union it was received with much acclamation, hence many "skeds" and much discussion between 2NS and 2YB.

The course on which the races are run is a road circuit, approximately seven miles around, which is made available by the local shire council, and it was decided to place one portable about half-way round the course for the purpose of signalling the numbers of the riders as they passed on each lap. These numbers were passed on to the Public Address System announcer, thus keeping the spectators in touch with the progress of the races when there would otherwise be a dull period while the riders were out of sight. Although, fortunately, it was not necessary, it was also an important link with the race officials to call assistance in case of accidents.

The necessary gear was supplied by 2NS (he being located at the scene of operations), and consisted of two transmitters and two receivers. For the end where the P.A. System was installed and where A.C. lines had been made available, the transmitter was a Hartley, with 350 volts of R.A.C. to a 205d valve, and the RX was an E.C. job, using a 57 and a 2A5. This was operated by 2NS, as his machine was entered in the handicap race, and he naturally wished to be handy to arrange things for his rider. The other end, which was operated by 2YB, was battery operated (2200 volt mains ran close handy, but who wanted them? Hi.) This transmitter was also a Hartley, using a 201A, supplied with 180 volts from four blocks of "B" batts. The receiver was a three-tube (detector and two audio), with only 45 volts on each tube. Both sky-wires were of the A.O.C. type, each being supported at the free end by a 20-foot piece of hardwood tied to fences. Hi. Small aërials (about 15 ft. long and 3 ft. high) were used on the receivers. and

since the distance airline was only about two miles and the PDC (Hi) sigs were R9 very FB break-in was used throughout.

To ensure accuracy, break-in was almost essential, as it only took the riders about three minutes to cover the distance between the stations, consequently stragglers would still be passing 2NS while the leader was passing 2YB and with the resultant QRM queries were sometimes necessary. 2NS swears that it is much easier to copy South Africans than to copy our R9 sig through the QRM from a bunch of well-tuned TT Replica "Rudges" and International "Nortons," doing some 80 m.p.h., with straight-out exhausts, Hi.

Early in the day 2VJ arrived to view the races, and was promptly appointed second op. to 2YB, and did very good work, checking riders' numbers and keeping small boys from the line of vision, also rounded up a pup, which wanted to investigate the R.F. in the transmitter, Hi. Another "ham" to put in an appearance was 20D, who paid 2NS a brief visit.

A violent and somewhat monotonous form of QRM was prevalent from gentlemen who would rush to 2NS when he was endeavouring to copy a batch of numbers from 2YB, and want to know "who won the Doncaster?" or could he listen to the description of same. Alas, after Trevor's somewhat colorful reply they would wander sadly away, never to return.

The two stations were in operation almost continuously from 9 a.m. to 5.30 p.m., and statistics show that over 800 numbers would pass 2YB in that time. In one race there were 46 entries, and the "ops" were certainly kept "opping" when these came through in bunches.

Many other urgent messages were received by 2NS from Bill, of 2VY, such as "When do we drink?" "Hold everything and send us some eats," etc. 2YB and 2VJ "put one over" on 2NS, when a kindly old lady, in whose "umpteenth" acre paddock their gear was located, introduced a thermos flask of tea, together with the necessary biscuits, Hi.

At the conclusion of a very FB day it was unanimously agreed that "Ham" radio had added greatly to the interest in the races for the spectators as well as giving the operators some

experience of operating under open-air conditions.

Should any reader have heard either of the stations, both operators would greatly appreciate reports, even though the reports are somewhat belated. 3.5 m.c. was the band used,

and many Interstate and local hams were heard during the day at strength varying from R6 to R8 on the small aeriels. Owing to being very QRL no time was available for QSO's. CW was used in preference to 'phone, because of the aforementioned QRM.

MELBOURNE CENTENARY DX CONTEST.

Here are the detailed characteristics of the Radiotron 852 and 800, which have been kindly donated by A.W.A. Ltd. for first and third prizes in the open section:—

Radiotron UX-852.

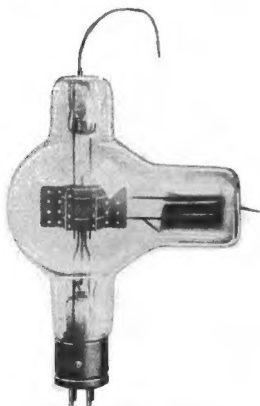
General.

Main use—oscillator and R.F. power amplifier.

Number of electrodes—3.

Filament voltage—10 volts.

Current—3.25 amperes.



Type—Thoriated Tungsten.

Average characteristic values calculated at:—

$E_b = 2000$, $E_c = -108$, $E_f = 10$ volts D.C.

Plate current—0.050 amperes.

Amplification factor—12.

Plate resistance—10,000 ohms.

Mutual conductance—1200 micromhos.

Approximate direct interelectrode:—
Capacities—

Plate to grid—3 mmf.

Grid to filament—2 mmf.

Plate to filament—1 mmf.

Type of cooling—air.

R-F Power Amplifier.—Class B.

Maximum operating plate voltage—3000 volts.

Maximum unmodulated D.C. plate current—0.085 amperes.

Maximum plate dissipation—100 watts.

Maximum R.F. grid current—10 amperes.

Typical operation:—
 $E_b = 2000$, $E_c = -150$, $E_f = 10$ volts D.C.

Unmodulated D.C. plate current—0.060 amperes.

Peak output—120 watts.

Carrier output (modulation factor 1.0)—30 watts.

Oscillator and R.F. Power Amplifier.—Class C.

Maximum operating plate voltage:—
Modulated D.C.—2000 volts.

Unmodulated D.C.—3000 volts.

A-C (R.M.S.)—3000 volts.

Maximum D.C. plate current—0.100 amperes.

Maximum D.C. grid current—0.040 amperes.

Maximum plate dissipation—100 watts.

Maximum R.F. grid current—10 amperes.

Typical operation:—
 $E_b = 2000$, $E_c = -250$ approx., $E_f = 10$.

Output—100 watts.

Socket type—UR-542 plus clips.

RCA Radiotron 800.

Filament voltage (A.C.)—7.5 volts.

Filament current—3.25 amps.

Amplification factor—15.

Grid plate capacitance—2.5 mmfd.

Grid filament capacitance—2.75 mmfd.
 Plate filament capacitance—1.0 mmfd.
Class B. Modulator.
 D.C. plate voltage—1250 (max.) volts.
 D.C. plate input—85 (max.) watts.

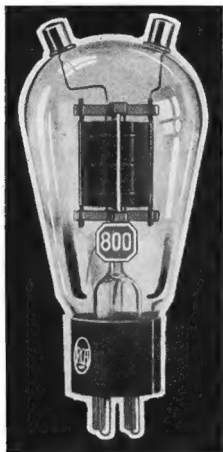


Plate dissipation—35 (max.) watts.
 Typical operation (2 valves).
 Filament voltage (A.C.), 7.5 volts.
 Plate voltage (D.C.), 750; 1000, 1250 volts.
 Grid voltage (D.C.), —40; —55, —70 (approx.) volts.
 Static plate current (per valve), 13; 14, 15 milliamp.
 Peak grid voltage, plus 121; plus 93, plus 77 volts.
 Peak grid swing, 156; 143, 142 volts.
 Average grid current (per valve at full output), 17; 10, 9 (approx.) milliamp.
 Peak grid current, 77; 47, 37 milliamp.
 Peak plate current, 333; 253, 200 milliamp.
 Average plate current (per valve) at full output, 107; 82, 65 milliamp.
 D.C. plate input (per valve), 80; 80, 80 watts.

Load resistance (plate to plate), 6400; 12,500, 21,000 ohms.
 Nominal power output (2 valves), 90; 100, 106 watts.
Oscillator and R.F. Power Amplifier.
Class C.
 Plate voltage D.C.—1250 (max.) volts.
 Plate current D.C.—80 (max.) milliamp.
 Plate dissipation—35 (max.) watts.
 R.F. grid current—5.0 (max.) amperes.
 D.C. grid current—25 (max.) milliamp.
 Typical operation:—
 Filament voltage (A.C.)—7.5 volts.
 Plate voltage (D.C.), 750; 1000, 1250 volts.
 Grid voltage (D.C.), —100; —135, —175 volts.
 Plate current (D.C.), 70; 70, 70 milliamp.
 Grid current (D.C.), 15; 15, 15 milliamp.
 Driving power (R.F.), 2.0; 3.0, 4.0 watts.
 Nominal power output, 35; 50, 65 watts.

HAMADS

Payment in Advance.

Rates.—To Members of W.I.A. and Affiliated Bodies, 2d. per line or part.
 Non-members, 4d. per line or part.

3RF will be unable to fulfil any further orders for QSL cards until July. 3RF, 42 Orrong crescent, Caulfield.

Rush your order for QSL CARDS to A. R. Cook, Printer, Mordialloc, S.12 (Vic.).

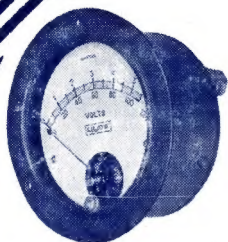
FOR SALE.

Mullard T61D valve, practically new, £6. Pair Kenotron rectifiers for above, rated 2000 volts, 150 mils. each, almost new, 30/ each. Pair Osram GU.I rectifiers, fair condition, 15/ each.

V. Stanley, Carlingford, N.S.W.

FOR SALE, CHEAP.

QST 63 Copies (1925-30) and 4 Binders. T. and R. Bull. 77 Copies (1926-33). Pair New Ferranti Q.P.P. Transformers. Senior B.T.H. R-K Permag. Speaker. J. E. GRAHAM. 44 Murphy Street, South Yarra.



SIEMENS ELLIOTT BRITISH RADIO INSTRUMENTS

For **ACCURACY**
RELIABILITY
and SERVICE

STOCKS OF MINIATURE INSTRUMENTS AVAILABLE FOR
D.C., A.C. AND R.F. MEASUREMENTS IN MOVING COIL,
MOVING IRON, THERMO COUPLE AND RECTIFIER PATTERNS.

Submit Your Instrument Problems
to us.

SIEMENS (Australia) PTY. LTD.

SYDNEY, MELBOURNE, BRISBANE, ADELAIDE.

H. C. LITTLE & CO. LTD., PERTH.

F. H. FEARON, NEWCASTLE.

THE SIMPLEX AUTO BUG

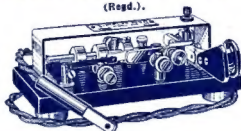
HEAVY CONTACTS.

Speeds, 5 to 40 w.p.m.

Handsomely finished
in Black Enamel and
Nickel.

Obtainable from the Manufacturer

(Regd.).

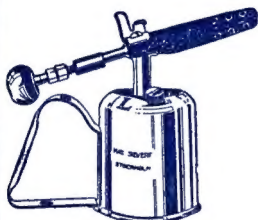


Used by
P.M.G.'s DEPT.
AIR FORCE
LEADING HAMS.

Special Radio Model,
£3/7/6 NETT.
Post Free.

L. C. COHEN, of VK3TO, CAMBERWELL, VIC.

HAM HARDWARE



Sievert's Petrol Blow Lamp.

Capacity 1-3rd pint. No pump required. Needle valve eliminates the use of pricklers for the nipple. Price, 8/6.

Diagonal Cutters.

German, 1/3, 1/11; Swedish, 3/.

Insulated Radio Pliers

1/9 pair.

Spintite Wrenches

For $\frac{1}{4}$ in. Hexagon Nuts, 2/ ea.

For $\frac{1}{4}$ in. Square Nuts, 2/3 ea.

Metal Thread Screws.

All sizes and shapes.

Copper Wire.

Special Hard Drawn for Aerials,
14 gauge.

Sets Twist Drills.

1-16 in. to 3-16 in. (9 in box), 1/- set.

Copper Tube.

Suitable for Tank Coils, Sheet Aluminium, all gauges. Cut to your size.

Thos. Warburton Pty. Ltd.

384 BOURKE STREET, MELBOURNE.

Central 9, 10, 11 (3 lines)

ARE YOU A MEMBER?

Subscriptions to the W.I.A. (Victorian Division) are
as under:—

Full Member, 20/-. Associate Member, 16/-.

Country—Full Member, 14/6; Associate Member, 10/6.

Student Member, 7/6.

Entrance Fee, 2/6.

Write to Secretary, KELVIN HALL, Collins Place, City.